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## Inside Dope

By George F. Taubeneck

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Outgoing Signal Is Powerful

### Let's Relax Again

Continuing our policy of talking about something unrelated to strikes and the merchandise you can't get, this week "Dope" is looking into that exciting subject of radar.

Now don't run away: some day you may be *selling* it! (Or riding to the moon on it!)

### It Has Peacetime Uses

Most wartime applications of radar are readily convertible to peacetime uses.

The use of radar in locating planes can be put to work in traffic control at airports, where there should be tremendous increase in the number of daily take-offs and landings.

A radar set in the control tower will give the operator a complete picture not only of all planes approaching the field but also of their position in relation to landing strips, obstructions, and other planes. This information, radioed to incoming pilots, will enable the operator to control large numbers of planes with great speed and accuracy.

The use of radar on commercial and private planes will undoubtedly contribute to the reduction of air accidents.

The possibility of aircraft crashing against mountainsides or other lofty obstructions should be greatly lessened, because radar penetrates the deepest fog, the most blinding snowstorm. Complete information concerning the obstruction—its height and distance from the plane—can be flashed to the eye of the pilot in ample time to avoid a collision.

Similarly, radar will prove a peacetime boon to ships sailing through dangerous waters by warning them of obstructions hidden by fog or darkness.

### Supplementary Information

Radar—which means Radio Detecting and Ranging—is based on a simple principle, as simple as the occurrence of an echo.

The mountaineer who stands atop one cliff, projects his voice across space to the wall of another cliff and receives back an echo, is demonstrating a kind of "sound" radar. His voice waves, traveling across the void at a speed of 12 miles a minute, strike the cliff wall and rebound to the speaker.

Similarly, radar waves traveling with the speed of light—186,000 miles a second—streak across space, rebound from the target and return to their starting point.

Using a stop-watch the mountaineer could easily determine the distance of the cliff which returned his voice to him.

If a quarter of a minute elapsed between the time he shouted and the moment he heard his echo, the mountaineer could calculate that the sound waves had traveled three miles —or one-fourth of 12 miles a minute, the speed of sound.

Since three miles represented the "round trip" distance of the waves, then the distance of the cliff from where the mountaineer stood would be one-half of three miles or a mile and a half.

*(Concluded on Page 2, Column 2)*

## National Assn. Is Incorporated By Contractors

CLEVELAND — Formal organization of the National Association of Refrigeration Contractors was completed at a meeting Jan. 21 and 22 in the Carter hotel here. Attending the two-day meeting were refrigeration contractors from 38 states, representing more than 1,000 firms and individuals in this important segment of the refrigeration industry.

Constitution and by-laws of the new association, formulated by a committee appointed at the meeting held last Dec. 10 in the Palmer House, Chicago, and unanimously approved by delegates to the Cleveland meeting, place the management of the organization in the hands of a board of 12 directors, six representing geographical areas of the country and six chosen directors-at-large.

Regional directors elected at the meeting are: L. C. Anderson, River Forest, Ill.; W. E. Booth, Richmond, Va.; Nathan Edelstein, New York City; C. R. Faulkner, Longview, Tex.; M. M. Jamison, Dayton, Ohio; and J. F. Park, Los Angeles.

Directors-at-large are: W. L. Drake, Indianapolis; William G. Euth, Detroit; Warren W. Farr, Cleveland; A. M. Palen, Minneapolis; Lee Shirar, San Francisco; and Eldon S. Wright, Youngstown, Ohio.

National officers, chosen by the directors, include: Warren W. Farr, president; M. M. Jamison, first vice president; J. F. Park, second vice president; A. M. Palen, treasurer; E. S. Wright, recording secretary; and L. C. Anderson, sergeant-at-arms.

Both officers and directors will serve until the next meeting of N.A.R.C., which will be held in October of this year during the All-Industry Refrigeration and Air Conditioning Exhibition to be held in Cleveland.

A Life Membership in the association was voted to W. Ray Kromer of Cleveland, whose efforts were largely instrumental in getting plans for the association under way, and who served as chairman of the group during the organizational period. Mr. Kromer explained that because his future association with the refrigeration industry would be national in scope, and involved his leaving the contracting phase of the business, it would not be possible for him to continue his association in an active capacity, but that he would continue to be interested in N.A.R.C. activities and would work closely with officers and directors in every way possible.

Three classes of membership were provided for, as follows:

*Class A*—Individual firms employing one or more refrigeration mechanics, and located in an area in which there is no local refrigeration contractors association affiliated with the N.A.R.C.

*(Concluded on Back Page, Column 1)*

## Most Patients Prefer 'Cold' Anesthesia

MINNEAPOLIS—Research at hospitals of the University of Minnesota has revealed that patients frequently prefer refrigeration anesthesia to other forms, declared Dr. Clarence Dennis, associate professor of surgery at the university, at a recent nation-wide clinic on anesthesiology held here.

"Wide interest has been expressed in the possibilities of amputation of extremities where the only anesthesia used was refrigeration," he said.

"Patients who have had one extremity removed in this manner and the other by means of another method of anesthesia all express their preference for refrigeration," Dr. Dennis explained.

## Westinghouse Has New Developments In '46 Range Line

MANSFIELD, Ohio — Although production is currently interrupted by strikes, the Westinghouse range department has announced the first of its 1946 electric range line, which features chromium trim and new engineering developments in its surface heating units, according to R. M. Beatty, manager of the department.

Production will be concentrated at first on a single model, the Champion, which is a medium priced unit. Shipments will be so scheduled as to permit display of the model throughout the country at about the same time, said Mr. Beatty.

A full line of models will be offered as soon as production facilities will permit, ranging from a large two-oven size to small apartment sizes and a combination fuel-electric models for use where the range furnishes room heat as well as cooking facilities.

In anticipating an increased public

*(Concluded on Page 4, Column 1)*

## Hedrick To Manage Mills Industries Refrigeration Div.

CHICAGO — Harrison J. Hedrick, who served for two years as a commodity specialist with the Commercial Refrigeration and Air Conditioning Section of the Office of Price Administration in Washington, and formerly assistant sales manager of the Refrigeration Division of Mills Industries, Inc., has been appointed manager of the division by Gordon B. Mills, vice president in charge of sales.

Prior to his association with Mills, Mr. Hedrick was for 10 years president and general manager of Jewett Refrigerator Co., Buffalo. In 1931 he joined the commercial refrigeration division of R. Cooper, Jr., and it is this position he left to join Mills Industries in 1941. He assumed his position with the OPA in 1942 and returned to Mills in 1943.

His position at Mills Industries, Inc., places him in complete supervision of design, production, and sales of condensing units and allied equipment.

## Refrigerator May Be 'Range of the Future'

BUFFALO—"Heatless stoves" that cook a roast in a refrigerator are "definite possibilities" for the future, according to Dr. Phillips Thomas of Pittsburgh, research engineer of the Westinghouse Electric Corp.

In Buffalo to address the Western New York Section of the American Industrial X-Ray Society, Inc., Dr. Thomas said new inventions, new materials, and the "know how" accumulated in wartime will continue to be developed at a rapid pace in peacetime.

Pointing out how development of heating by radio frequencies prog-

*(Concluded on Back Page, Column 3)*

# G-E and Westinghouse Resume Wage Negotiations with Union

* * *

## Noma Electric Buys Refrigeration Corp.

NEW YORK CITY—Henri Sadacca, president of Noma Electric Corp., has announced the purchase of Refrigeration Corp. of America, manufacturer of "Frigid Freeze" home and farm freezers, frozen food lockers, air conditioning equipment, and frozen food equipment for retail stores.

The acquisition of Refrigeration Corp. marks the second step toward the completion of Noma's previously announced plan of expansion into the field of durable consumer goods. Noma entered the home equipment field in December with the purchase of the Estate Stove Co., Hamilton, Ohio, manufacturer of gas and electric ranges and "Heatrola" oil, gas, and wood-fired space heaters.

John Bess, a veteran of 20 years in the electric refrigeration field, will continue as president of Refrigeration Corp. and there will be no changes in their officers, nor is any change in policy contemplated, it was stated.

Mr. Bess announced that in preparation for greatly increased production, Refrigeration Corp. has purchased additional manufacturing facilities, amounting to 145,000 sq. ft., at Perth Amboy, N. J.

"Our association with Noma will permit us to rush completion of the installation of new, modern machinery at Perth Amboy," he commented. "And additional working capital now available to us will enable us to resume production of the Frigid-Freeze line of ice cream cabinets, beverage coolers, refrigerated dairy cases, biological cabinets, and air conditioned candy display cases.

"We expect to produce a new line of home and office air conditioning equipment and we will greatly increase production of our Frigid-

*(Concluded on Back Page, Column 4)*

## Control Makers Must Hold To Cash Discounts

WASHINGTON, D. C. — Manufacturers who sell four types of automatic controls used in refrigeration, air conditioning, or heating are required by OPA to extend cash discounts as favorable as those granted during March, 1942, under the provisions of a recent amendment to Order 1, MPR 591.

The controls listed in the amendment are: Low voltage electrical controls, 110-220-volt electrical controls, pneumatic controls (including air compressors, gauges, etc.), and direct-acting controls (hydraulically operated).

Amendment 4 altered Section 7.1 of Order 1 to read that maximum prices for sales by any manufacturer of these types of controls as determined under MPR 591 "shall be subject to the most favorable cash discounts which each manufacturer extended or would have extended to each class of purchaser during March, 1942."

Jan. 21 is the effective date of the amendment.

## Gov't Names 2 Mediators As Union Lowers Wage Demands

WASHINGTON, D. C. — Negotiations were resumed last week between heads of the strike-bound G-E and Westinghouse plants and union leaders following the appointment of two Federal mediators.

The mere fact that joint discussions of the wage dispute were started is encouraging news in the otherwise dark picture confronting the appliance industry today.

The union has also announced that it has reduced its wage boost demands from the $2 a day increase originally asked.

Although the electrical strike directly hits General Electric, Westinghouse, and electrical divisions of General Motors Corp., and indirectly other appliance manufacturers due to the stoppage of electric motor production in these plants, the nation-wide steel strike will likely affect all appliance producers sooner or later.

### SIX JOIN IN TALKS

Meetings were started last week between Charles E. Wilson, president of G-E; A. W. Robertson, chairman of the Westinghouse board; Albert J. Fitzgerald, president of the United Electrical, Radio & Machine Workers of America; James J. Matles, international representative of the union; and two mediators appointed by Secretary of Labor Schwellenbach.

The mediators are William H. Davis, former chairman of the War Labor Board; and Arthur S. Meyer, chairman of the New York State Mediation Board.

General Motors is not a party to these negotiations because the union has continued its discussions with GM in view of GM's offer of a 13½ cents an hour being higher than the G-E and Westinghouse offers, the union explained.

The union has offered to stop the strike, according to Mr. Fitzgerald, if G-E and Westinghouse would offer 15-cent increases and General Motors would pay the 19½ cent hourly raise recommended by the automobile fact-finding board.

G-E to date has offered a 10 cent hourly wage boost on wages less than $1 an hour and a 10% increase for those receiving wages over $1 an hour. Westinghouse has proposed a 15% raise in pay for a 10% increase in hours.

### DOUBT SETTLEMENT WILL FOLLOW STEEL

The eventual outcome of the new negotiations cannot be predicted, but the generally held opinion that settlement would follow any pattern that may be established for the steel industry now seems less valid following a statement by G-E President Wilson.

"Company officials have consistently urged settlement on considerations of General Electric employes' wage rates and not on the basis of a nation-wide union demand or other industries' rates," he declared last week.

He was commenting on the offer made by Union President Fitzgerald in testimony before the Senate Education and Labor Committee in Washington, D. C., to submit the wage dispute to arbitration without regard for wage increases already offered in other industries.

Mr. Wilson would not comment on the proposal for arbitration, but did say he was interested in Mr. Fitzgerald's apparent willingness to consider settlement of the strike "on some basis other than the union's arbitrary and unrealistic demand for a $2 per day increase or acceptance

*(Concluded on Page 4, Column 1)*

## What the Manufacturers Showed.... And Their Word on Deliveries

The refrigeration and major appliance products shown at the recent Winter house furnishings marts are described on pages 14 and 15 of this issue, together with the manufacturers' predictions on when shipments of the various items might be expected.

Says GASKET JOE

YOU WON'T GET DINNERS AT THE RITZ LEAVING DOOR GASKETS ON THE FRITZ

5-A

JARROW PRODUCTS
420 N. LA SALLE ST., CHICAGO 10, ILLINOIS



By comparison- You'll buy PAR REFRIGERATION EQUIPMENT
WRITE FOR CATALOG
Lynch MANUFACTURING CORPORATION
DEFIANCE, OHIO, U. S. A.


# Inside Dope

By George F. Taubeneck

*(Concluded from Page 1, Column 1)*

In the same way, the distance of a target from the radar transmitter can be determined.

If one-thousandth of a second intervened between the outgoing and incoming signal, then the round-trip distance the radar traveled would be one one-thousandth of 186,000 miles a second, or 186 miles. The range of the target would hence be one-half of 186 miles or 93 miles.

## *Earlier Methods Used*

While radar is relatively new, methods of detecting the direction of distant and invisible targets were used as long ago as the last war.

One method depended on the chance pick-up of radio signals from the target itself—an enemy ship, for example, communicating with its base. But this proved highly unreliable, since if the ship were not broadcasting, detection was impossible.

Another method was the use of giant mechanical "ears" to pick up the sound of approaching planes. But since this was limited by the speed of sound—700 miles an hour, about twice the velocity of a fast bomber—the presence of a speedily approaching target could not be revealed soon enough.

Radar is vastly superior to both these methods.

First, radar does not depend upon any signal—radio, sound, or light—originating at the target; it sends out and receives back its own signal.

Second, radar waves travel with the speed of light; they can detect a target a score of miles away in less time than it takes to wink an eye.

Third, radar is effective for long distances and is in no way hampered by clouds, fog, rain, smoke, or snowstorms.

## *First Noted in Twenties*

The basic principle of radar was first noted back in 1922 by Dr. A. Hoyt Taylor of the Naval Research Laboratory, and from that time he and his associates were engaged in the secret development of this discovery.

Successful detection of an enemy target by radar is completed in three basic steps.

High frequency radio waves are projected into space, in much the same way that a searchlight probes the surrounding darkness. Some of this energy bounces off a target in its path. A still smaller portion of the energy returns to the radar base, where sensitive receivers pick it up.

The radio waves are created in an electronic generator which produces frequencies of many millions of cycles—that is, the waves oscillate many millions of times in a single second. In addition, the waves are of very short length, as measured by the distance between the peaks or valleys of successive waves.

## *Waves Are Very Short*

These ultra-short waves—called microwaves—are a key factor in radar, because they travel in a straight line from the transmitter to the target and back again, thus assuring that the exact position of the target is recorded by the receivers.

Commercial broadcast waves, on the other hand, do not travel in a straight line, but curve around the surface of the earth.

The antenna from which radar waves are shot into space is very small, consisting of two rod-shaped conductors a few inches in length. It can be mounted above the surface of the earth on a beacon, on the mast of a ship, or on a plane.

To direct the waves into a narrow beam, a reflector is used very similar to the one on your automobile headlight.

Radar transmission and reception is roughly similar to ordinary broadcasting and receiving. The main difference is that in radio a signal from the broadcasting tower is picked up by many home sets scattered throughout the country, while in radar the transmitting and receiving stations are located in the same place.

## *Single Antenna Used*

In fact, a single antenna is commonly used in radar to do both jobs of sending and receiving.

First, a short burst of energy generated in the transmitter is sent out from the antenna. Then, after a fraction of a second, the return signal is intercepted by the antenna and fed to the receiver.

The duration of the outgoing burst of energy is measured in millionths of a second, depending upon the estimated range of targets.

For example, if the shortest range desired is 327 yards, then the radar beam would travel to and from the target in two millionths of a second, since light moves at the rate of 327 yards every millionth of a second. Hence, the duration of the outgoing burst of energy must be no more than two millionths of a second, in order not to interfere with the return signal.

The length of time between outgoing signals is determined by the longest range desired. If this is 327,000 yards, for example, the beam would have to travel twice this distance, or 654,000 yards, to reach the target and return. At 327 yards every millionth of a second, it would take the beam 2,000 times a millionth of a second, or one five-hundredth of a second for the round trip.

Hence, the time between outgoing signals must be no less than one five-hundredth of a second; otherwise, the weak returning signal might be lost in the strong, transmitted beam.

## *Beam Scans All Points In Space*

In searching for a target, the antenna and its reflector are rotated rapidly through all points in space, in exactly the same way that a flashlight beam probes the surrounding darkness.

In surface scanning, the kind used to detect vessels on the sea, the reflector is rotated continuously in a complete circle of 360 degrees on a horizontal plane. This gives the bearing angle, or compass direction, of the target.

If the target is in the air, other indicators give the angle of elevation.

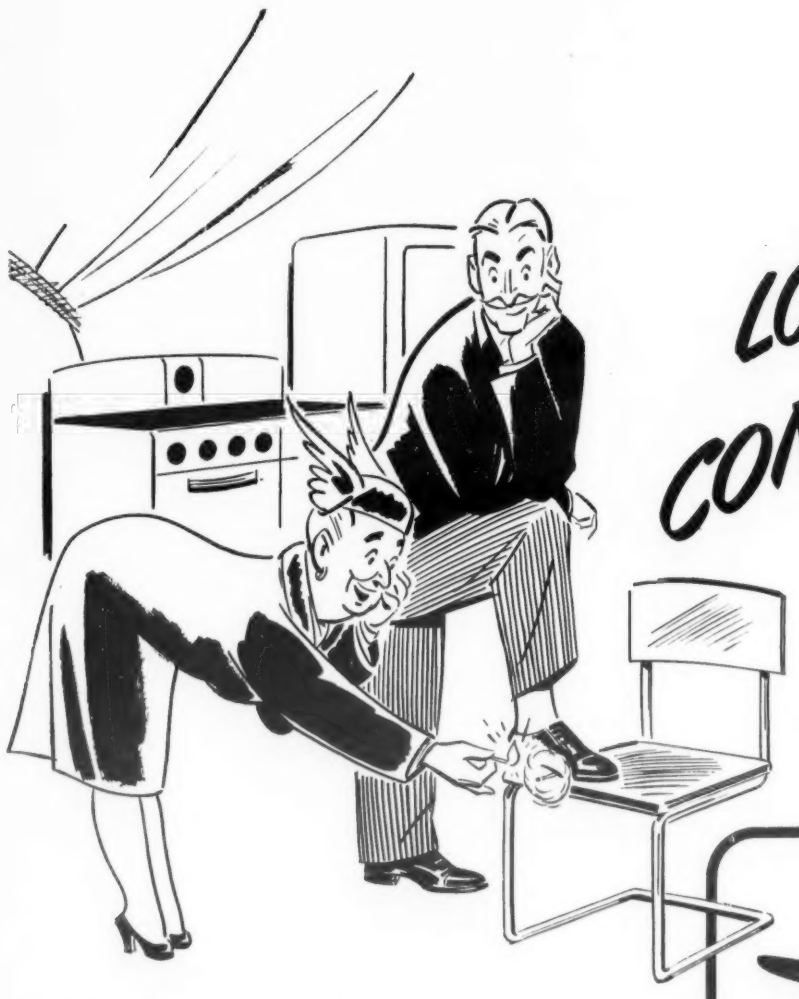
## *Outgoing Signal Is Powerful*

The outgoing signal is a tremendous burst of energy, very often more powerful than the maximum output of the nation's largest radio stations. This is necessary because the beam, as soon as it leaves the antenna, is dispersed through hundreds of square miles of space in search of a target.

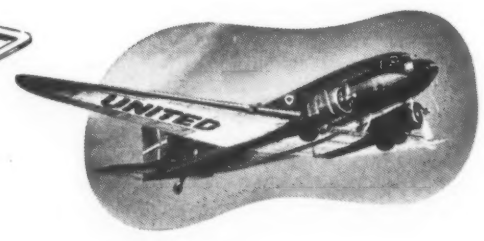
Only a portion of the spreading rays strike the target, and of these a still smaller portion rebound to the receiver. On the return journey also the beam fragment is still further dispersed throughout space, so that by the time the beam reaches home it is literally a mere shadow of its former self.

In short, the returning signal is one five-billionth of the original burst of energy. Yet sensitive receivers pick it up, electronic amplifiers increase its volume and its message is easily read by the radar operator.


Easily demonstrated advantages of FIBERGLAS insulation



LOW HEAT CONDUCTIVITY




DID YOU KNOW . . .
Highly efficient, lightweight Fiberglas is used to insulate the sensational new "flying refrigerator" recently introduced by United Air Lines. With a single loading of dry ice, tons of perishables (even fresh-caught fish) are kept at safe, low temperatures for hours . . . for more than a thousand miles.

*Insulation* can be a real selling feature—can help you close many a sale when that insulation is *Fiberglas**. That's one big reason Fiberglas is so widely used today in insulating home appliances.

Never before has any insulation been such a standout—*first choice* with manufacturers, distributors, retailers and consumers alike. Outstanding performance in millions of homes—in ranges, refrigerators and other household equipment built before the war—accounts for this broad acceptance. And today, Fiberglas Thermal Insulation is better than ever . . . *a swell feature to sell.*

FIBERGLAS THERMAL INSULATION
*T.M. Reg. U. S. Pat. Off.



PROVED and APPROVED

DAVISON'S *Refrigeration Grade* SILICA GEL

Because Davison's Refrigeration Grade Silica Gel was developed especially for the dehydration of refrigerants . . . because Davison engineers worked with refrigeration engineers to help them solve the problems created by moisture . . . Davison's Refrigeration Grade Silica Gel has, for years, been *the standard* drying agent for refrigeration engineers who wanted quality . . . the most for their money. They have found out that this quality has paid extra dividends in satisfied customers.

Specify DAVISON'S Refrigeration Grade SILICA GEL from your jobber.

"DAVISON'S" Does More!
In addition to assuring maximum capacity, instantaneous action, prevention of channelling, removal of acids and corrosive compounds, freedom from caking or powdering, absolute safety . . . DAVISON'S Refrigeration Grade Silica Gel COMPLIES WITH THE REQUIREMENTS OF JOINT ARMY-NAVY SPECIFICATION JAN-D-196-GRADE A TYPE II FOR DESICCANTS (ACTIVATED)

*Your Jobber stocks Davison's Refrigeration Grade Silica Gel . . . in factory-charged dehydrators and for refill.*

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Progress through Chemistry
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Canadian exclusive sales agents for DAVISON'S SILICA GEL:
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# United Cases, Bottle Units Prices Set

WASHINGTON, D. C.—Two recent OPA orders issued under MPR 591 authorize maximum prices for eight models of beverage coolers manufactured by United Refrigerator Mfg. Co., of St. Paul, Minn., and four models of double-duty display cases manufactured by United Refrigerator Mfg. Co., Eastern Division, Inc., of Connellsville, Pa.

Prices of the beverage coolers are f.o.b. point of shipment:

| Model | On sales to—Distributors | Dealers | Consumers |
|---|---|---|---|
| Beverage cooler: | | | |
| 4 ft. | $192 | $230 | $384 |
| 6 ft. | 220 | 266 | 442 |
| 8 ft. | 250 | 300 | 500 |
| 10 ft. | 284 | 340 | 568 |
| 12 ft. | 332 | 399 | 664 |
| Beverage cooler S C: | | | |
| 4 ft. | 316 | 380 | 632 |
| 6 ft. | 358 | 430 | 716 |
| 8 ft. | 444 | 532 | 888 |

Order 209 fixed the following prices, f.o.b. Connellsville, for sales of the display cases:

| Model | On sales to—Distributors | Dealers | Consumers |
|---|---|---|---|
| Top display cases, double duty: | | | |
| 6 ft. | $368 | $442 | $ 736 |
| 8 ft. | 439 | 550 | 918 |
| 10 ft. | 548 | 657 | 1,096 |
| 12 ft. | 647 | 776 | 1,294 |

## Walk-In Priced at $1,334

ST. PAUL — Authorization for United Refrigerator Mfg. Co. here to retail a two-temperature walk-in cooler at $1,334 is contained in OPA Order 226, MPR 591.

No specifications are contained in the order. Ceiling prices on sales to distributors and dealers were set at $667 and $801, respectively.

# 'Reefer' Ship Shortage Hits Food Imports

WASHINGTON, D. C.—Shortage of refrigerated vessels is hampering shipments of food between the United States and Latin American countries, reports to the Department of Commerce indicate.

At present, there is hardly a refrigerator ship monthly to Puerto Rico, one report states. Until the shipping situation improves, shipments of frozen beef will continue to be made from the Dominican Republic to Puerto Rico.

Acreage devoted to winter vegetables for export by Cuba is well below prewar levels, principally because of the lack of assurance that adequate shipping space on refrigerated vessels plying between Habana and New York will be available.

Limited availability of refrigerated ships is the reason given in another report for infrequency of supplies of frozen meat to the British West Indies from Argentina.

# Refrigerated Fishing Fleet, Floating Cannery To Be Leased by RFC

SEATTLE—Sponsored by the War Food Administration and financed by the Reconstruction Finance Corp. as a war project, a $3,750,000 factory ship and fleet for the freezing, processing, and canning of fish will be completed and leased to the Pacific Exploration Co., Inc., here, the RFC has decided.

The boat being converted into a factory ship is the S. S. Mormacray, a steel cargo ocean-going vessel obtained from the War Shipping Administration. When the RFC approved completion of the project, substantial commitments had already been made and conversion of the ship had been under way for several months prior to V-J Day.

Four steel-constructed trawlers of approximately 165 tons each will accompany the floating cannery, in which refrigeration and canning equipment is being installed.

Now in the yards of Bellingham (Wash.) Iron Works, the Mormacray is of 8,368 deadweight tons. When completed, it will have accommodations for approximately 250 workers, plus office quarters and equipment.

Details are being worked out by Pacific Exploration officials and interested government departments.

# Fire In Hotel Air Duct Stumps Firemen 2 Hours

BUFFALO — Downtown firemen spent more than two hours in the basement of Hotel Lafayette Jan. 18 extinguishing a fire in an air duct running through the basement from the laundry quarters. Battalian Chief Miles S. Hartney said a short circuit ignited lint which had accumulated and dried in the duct.

"It wasn't much fire but it presented a problem," he said. "We cooled the ducts to extinguish the fire." He said damage would be about $3,500.

# Home Freezer Prices

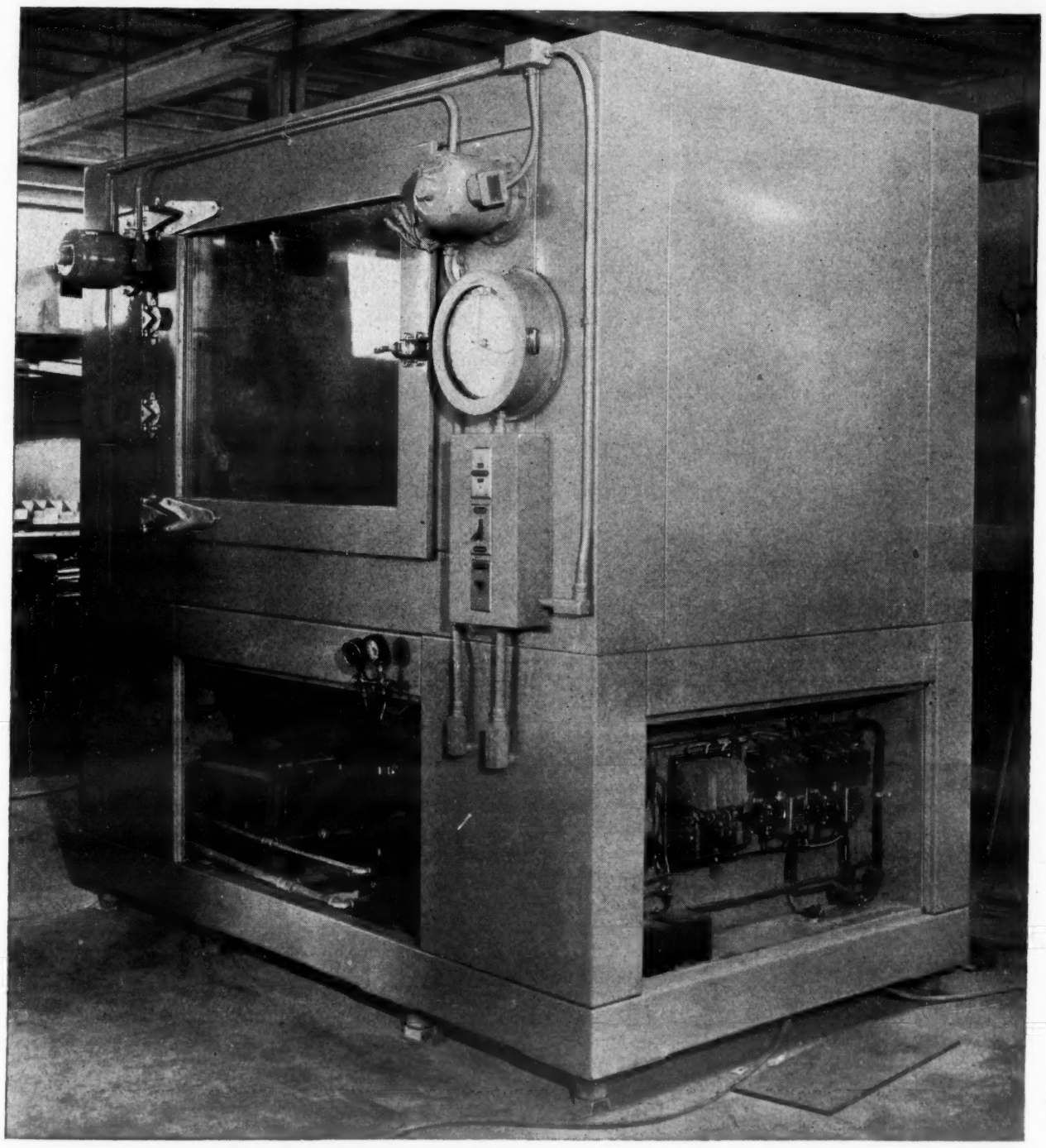
## Goodyear Aircraft Corp. 16-Ft. Unit Costs $500

AKRON, Ohio—Goodyear Aircraft Corp. here was recently authorized by OPA to retail its 16-cu. ft. farm freezer, Model 165, at $500, according to Order 223, MPR 591.

Equipped with a ⅓-hp. condensing unit, the freezer is priced at $225 to wholesalers, $250 to distributors, and $300 to dealers.

## Alservice, Inc., 20-Ft. Unit To Retail at $656

SEATTLE—Ceiling prices of $656 to consumers, $328 to distributors, and $394 to dealers were recently established by OPA in Order 229, MPR 591, for sales of a 20-cu. ft. home freezer manufactured by Alservice, Inc., here. The freezer is powered by a ½-hp. condensing unit.



The Hi-Low Testing Chamber Used by the Admiral Corporation.


Thank You!

FROM

AIRO sincerely appreciates the loyal patronage and friendly cooperation given us by our customers and suppliers, alike, through the turbulent war years.

*Now, at the beginning of a peaceful and productive era, we wish our many friends in the trade a most prosperous new year.*

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This is The baby. And we don't Mean maybe.

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ADJUSTABLE
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NATIONALLY ENDORSED

Your refrigerator will be safe and snug as a baby in a blanket when you protect its lovely new finish with a Mastercraft Adjustable Refrigerator Pad. Priced at only $11.75 each, it's economical and it's built for durability.

The Carrying Harness at $8.50 each is also adjustable and provides an easy means of carrying any size cabinet.

Attractive lettering of your name on pad at $2.00 each extra.

Write today for complete folder and prices on pads for refrigerators, home freezers, washers, ironers, ranges, radios; also furniture pads and protective slipcovers.

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Incorporated 1921
3815-3825 Cortland Street
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"FREON-22" Produces Sub-Zero Temperatures in New Product Development Work

AT THE Admiral Corporation plant in Chicago, Ill., "Freon-22" is utilized in a Hi-Low machine in which, during the war, tests were made on radio and radar equipment in simulated high-altitude temperatures.

Extremely low temperatures were held constant for periods as long as 12 hours. Specimens remained in the cabinet for a full week to insure thorough testing through temperature range of from + 85°C to − 55°C.

The machine, manufactured by the Kold-Hold Co. of Lansing, Mich., operates automatically. It records the temperature and permits exacting study of the effect of temperature cycles upon various materials.

Now application of low temperatures obtained with "Freon-22" is enabling Admiral Corporation to continue research in the development of new products.

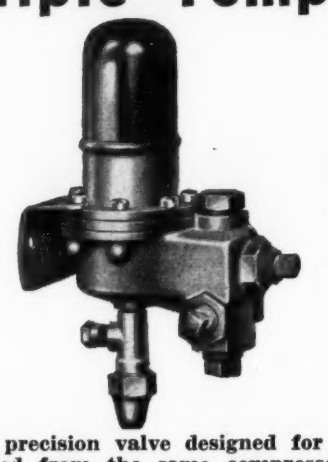
Today—when sub-zero refrigeration is required for research, tests or in manufacturing operations—"Freon-22" is widely used to produce those temperatures efficiently, economically and safely. Write for complete information. Kinetic Chemicals, Inc., Tenth and Market Sts., Wilmington, Delaware.

KINETIC
FREON
REG. U. S. PAT. OFF.
safe refrigerants
"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS AND PROPELLENTS

# SNAP ACTION VALVES
## for Multiple Temperature

Adjustable from 20" of vacuum to 63 lbs. pressure

Proven in Performance



Differential 7 lbs. minimum to 29 lbs. max.

Free from bellows strain

**Here is a marvelous precision valve designed for systems with more than one coil, operated from the same compressor. Any variety of units such as ice cream cabinets, soda fountains, back bars, water coolers, candy counters, beer coils, storage rooms, etc., may be connected to a single compressor unit by the use of an Aminco Snap Action Valve.**

**This means more today than ever before, what with the difficulties experienced by the serviceman in satisfying his trade with "too little" material for the work to be done.**

**Aminco Snap Action Valves are not an experiment. They have proven their worth in years of actual service and are doubly useful under today's conditions when one piece of equipment must do the work of several.**

**May be used with any refrigerant except ammonia. For flooded as well as dry gas types or any combination of either.**

**As always, our company is definitely interested in the survival of the refrigeration industry and is doing its utmost to cooperate with established operators.**

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William H. Cody, 2nd Unit, 10th Floor, Santa Fe Bldg., Dallas, Texas
Export: Borg-Warner International Corp., 310 S. Michigan Ave., Chicago, Ill.


## 5 New Distributors Appointed by Carrier

SYRACUSE, N. Y.—Carrier Corp. has announced the appointment of five new distributors: General Utilities Distributors, Chicago; Appliance Distributors, Inc., Indianapolis, Ind.; Thiele-Winslow Co., San Antonio; Allied Distributing Corp., Norfolk, Va.; and Bickford Brothers Co., Rochester and Buffalo.

According to Arthur P. Shanklin, vice president in charge of dealer sales, this brings to 32 the number of distributors who now are franchised to handle one or more lines of Carrier products. These distributors have under them approximately 3,600 dealers. In addition, Carrier has granted franchises directly to some 190 dealers.

Currently, Carrier Corp. has substantially more sales outlets than ever before in its history, Mr. Shanklin stated.

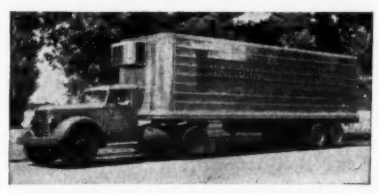
## Commercial Dealership Formed In Little Rock

LITTLE ROCK, Ark.—A new commercial refrigeration and air conditioning company here is Fort Smith Refrigerator & Equipment Co.

To distribute commercial refrigeration for stores, bars, meat markets, etc., as well as contract air conditioning installations, the company has an authorized and paid-in capital of $50,000. Officers are William Watkins, resident agent, Samuel Paulos and Franklin Wilder, both formerly in commercial refrigeration in Fort Smith, Ark.

## *For Truck Cooling*

**Patterned after the truck refrigeration unit developed for the Army's aluminum semi-trailer, this model 10 Thermo King has been introduced by U. S. Thermo Control Co.**



**Mounted at front of trailer as shown, the unit provides heating as well as cooling.**

* * *

## Heavy-Duty Unit for Trucks Introduced

MINNEAPOLIS—Featuring a new type of starter-generator which becomes an integral part of the gas-engine drive, a new forced-air truck refrigeration unit has been announced by U. S. Thermo Control Co. here.

The new unit, designated as Thermo King Model D-10, is larger in size and refrigeration capacity than previous units in the line, the company says. It is modeled on the heavy-duty light-weight unit which the company developed for use in the Army's new aluminum semi-trailers. Weight is 755 pounds.

Once the thermostatic control has been adjusted to the desired temperature, operation of the unit is entirely automatic, the company claims.

Also available is a kit which permits easy installation of heating service, the company says. Heat is obtained from engine and the refrigerant gas, and the temperature is thermostatically controlled, it is claimed.

U. S. Thermo Control expects to begin deliveries of the unit within 90 days.

## Philip-Rich to Occupy $75,000 Conditioned Offices, Showrooms

HOUSTON, Tex.—Philip-Rich Air Conditioning Co. will soon display equipment in a handsome showroom which is part of a new building being erected at San Jacinto and McIlhenny Sts.

The company, which designs and installs complete air conditioning systems up to 100 tons, will spend $75,000 on the new building, which in addition to the showroom will house equipment storage, a warehouse, shipping room, receiving room, metal working shops, drafting office, and a large factory for manufacturing attic fans in addition to exhaust fan equipment.

The building will be a two-story brick structure, with a convenient freight dock, and will be completely air conditioned.

Philip-Rich has hired many Army-trained ex-servicemen for installation work and air conditioning fabrication, and has already built up a large backlog of air conditioning jobs in Houston and surrounding Texas cities.

## *Iceberg Locker Systems Announces Appointment Of 15 Distributors*

NEW YORK CITY—Iceberg Refrigerated Locker Systems, manufacturer of Iceberg frozen food storage units, recently announced the appointment of 15 distributorships. Following is the list of new distributor appointments:

Goddard-Hottel Corp., Baltimore; H. D. Smith Sales Co., Bluefield, W. Va.; D'Elia Electric Co., Inc., Bridgeport, Conn.; Victor Shaw Co., Charlotte, N. C.; Iceberg Equipment Sales Co., Chicago.

Brooking Refrigeration Sales Co., Cleveland; Cate-McLaurin Co., Columbia, S. C.; General Appliance Co., Denver, Colo.

Appliance & Equipment Department, Little Rock, Ark.; Tennessee Valley Appliances, Inc., Memphis, Tenn.; Sunset Electric Co., Portland, Ore.

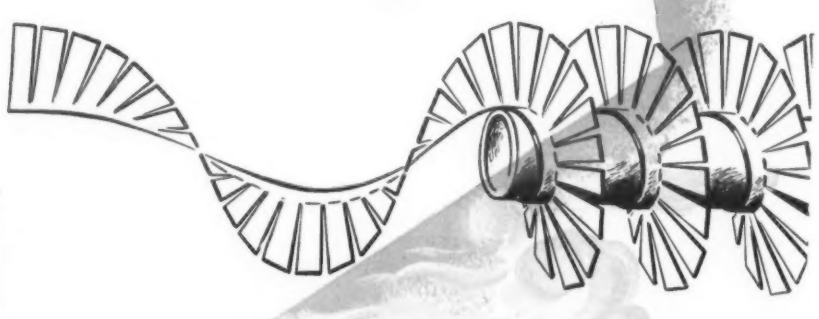
Sunset Electric Co., Seattle; Columbia Electric & Mfg. Co., Spokane, Wash.; Goddard-Hottel Corp., Washington, D. C.; Ridgewood Fruit Industries, Inc., Winchester, Va.

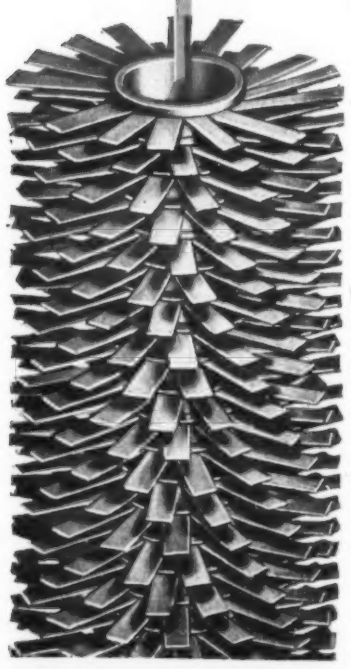

# FOR CREATIVE ENGINEERING AND DESIGNING

A unique advantage of Tilco Fin designing and production technique is the great flexibility made possible without any need for special dies. For instance, fins may be wound from 3 rows per inch up to 8 rows per inch, and this may be done on tubes from ⅜" to 1¼" in diameter, with fins of any height, starting with ¼".

If you have a problem requiring finned tubing we will be glad to work with you. We manufacture only finned tubing in straight lengths and our only interest is to efficiently serve those who use such tubing. We'll gladly send a Tilco Fin descriptive folder or specific information, without obligating you in any way.

TILCO FIN
*Extended Surface* TUBING





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All porcelain exteriors and interiors. Equipped with patented and exclusive features.

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GRAND HAVEN, MICHIGAN, EST. 1898

# Hoover Claim Denied On Absorption Patent

WASHINGTON, D. C.—Claims of the Hoover Co. to a reissued patent for an absorption type refrigeration unit have been denied by the U. S. Circuit Court of Appeals, upholding the decision the Commissioner of Patents and the District Court.

Involved in the case were patents held by C. C. Coons (with the Hoover company as the assigne) and Bergholm. One of the points of contention was that in each system heat exchange between the solutions used took place three times.

In the Bergholm patent, a concentric arrangement of conduits below the surface level of the liquid in the generator and the absorber brought the solutions into proximity for heat exchange three times.

The court decided that although the Coons patent also provided for heat exchange three times in the cycle no "triple heat exchanger" such as Bergholm employed was incorporated in the Coons design, and that the Hoover company therefore had no claims to the Bergholm reissue patent.

## Glasco to Manage Sales For Atlanta Concern

ATLANTA—Promotion of Forrest L. Glasco to the position of sales manager of the Refrigeration Exchange, Inc. here, has been announced by Ed Rawls, president, and Harry Mislow, vice president.

Mr. Glasco has had 18 years' experience in sales promotion work. He formerly was associated with the *Atlanta Georgian,* the *Atlanta Constitution,* and was for a time business review manager for the *Columbus Enquirer.* During the last several years he has been engaged in retailing of electrical appliances, refrigeration equipment, commercial and industrial ventilation.

Also announced by Refrigeration Exchange, Inc., was the addition to its sales staff of George T. Johnson and Thomas L. McClain, both recently discharged from the armed forces. Both have had prior experience in the electrical appliance sales field.

## H. D. Taylor Co. Appointed Coolerator Distributor

BUFFALO—H. D. Taylor Co., 99-117 Oak St., has been appointed Western New York distributor for the Coolerator Co., manufacturer of ice and electric refrigerators and home freezers.

# Architects Study Problems of Designing Kitchens For Appliances at Forum Sponsored by Distributor

BUFFALO — A move to provide close cooperative relations between architects and home equipment suppliers in the development of postwar home designing was made at the recent dinner meeting conducted by Bickford Brothers Co., appliance distributor of Western New York State, for architects of Rochester, N. Y.

Planned by Paul Wolk, president of Bickford Brothers, the meeting was arranged for a two-fold purpose: for an open discussion of architectural home designing problems, particularly along the lines of postwar plans and models of kitchen ranges and kitchen equipment, and to outline the company's service department program which will provide architects with complete and timely information about electrical appliance equipment.

The Bickford Brothers architects' service program is the outcome of findings which indicated that architects are often hampered in designing kitchens for postwar homes by the lack of complete information about kitchen equipment manufacture.

"In talks with architects, I found that this situation meant costly and unnecessarily frequent revisions in the architect's kitchen designs," Mr. Wolk says.

To provide the architects with an all-round view of postwar home planning and building situation representatives from all related fields were invited to attend the meeting, including leading builders, heads of city bank mortgage divisions, and factory representatives from leading kitchen equipment manufacturers.

Since the kitchen range represents the heart of kitchen activities, much time was devoted to stove designs. E. B. Nicholaus of the American Stove Co., maker of the Magic-Chef range, spoke to the architects about what they and the American housewife could expect from new range models and improvements.

Other topics such as refrigeration including freezing units, metal kitchen cabinets, kitchen furniture, and other equipment were also thoroughly reviewed under the leadership of Charles E. Corcoran, general sales manager of Bickford Brothers, who acted as chairman of the discussion meeting.

Speaking for the architects, Conway L. Todd, president of the Architects Association, stressed the fact that the meeting was hailed by members of the home design field as a progressive step in the right direction for building greater understanding and cooperation between home designer and home equipment supplier.

He also noted that the architects were looking forward to holding similar forums about the latest home equipment developments.

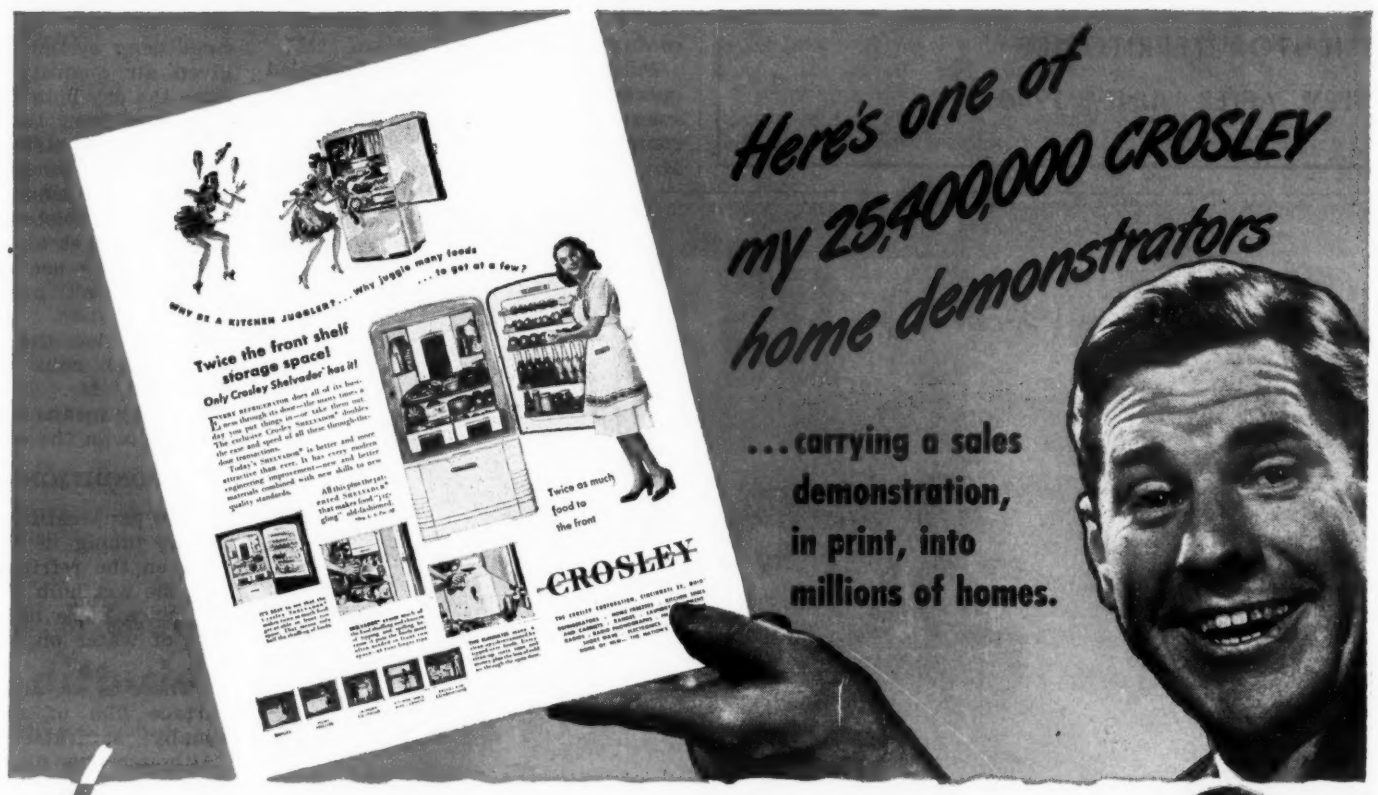
## OPA Lists Prices on 4 Ice Box Lines

WASHINGTON, D. C.—Price corrections, additional listings of new models, and other changes affecting the retail ceiling price schedules for new ice boxes sold by four concerns are included in two amendments to MPR 399 recently issued by OPA.

Ceiling prices for new boxes sold by Sears, Roebuck & Co. and Montgomery Ward & Co., Inc., are added to previously-published schedules by Amendment 24. Amendment 25 corrects ceiling prices for The Coolerator Co.'s Model C-7 and amends the listing of Ice Cooling Appliance Corp.'s models and prices.

## Kold-King Co. Formed

LOS ANGELES—A new corporation here is Kold-King Distributors, Inc., with 50 shares of no par value capital stock. Directors are: Lewis Siratte, James Sayeg, and Albert Van Zoeren, all of Los Angeles.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...carrying a sales demonstration, in print, into millions of homes.
Twice the front shelf storage space! Only Crosley Shelvador has it!
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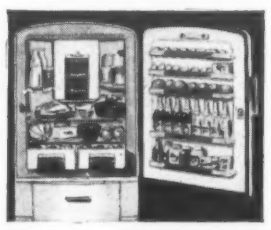
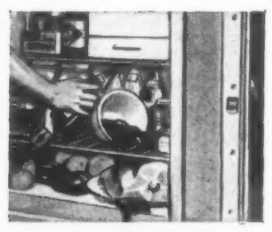
CROSLEY 1946 MAGAZINE advertising puts 182,669,000 messages before the eyes of able-to-buy families in every city, town and rural area in the country. Each message carries a direct demonstration of product features that only Crosley dealers can offer.

Behind these messages are the new Crosley products. In engineering, design and mechanical excellence this line sets new high standards—a challenge in salability and performance to the entire electrical appliance industry. *Crosley has it!* Wise dealers *know* it!



IT'S EASY to see that the Crosley SHELVADOR* makes twice as much food get-at-able in front row space. That means only half the shuffling of foods.

*Reg. U. S. Pat. Off.



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# Effect of Dehumidification by Coils In Air Conditioning Systems Outlined by Experts

## Detroit A.S.R.E. Hears Discussion of Design Problems and Solutions by Goodman, Leopold

**By C. Dale Mericle**

DETROIT — Theoretical and practical functioning of coils in air conditioning systems with special emphasis on dehumidification, was outlined at the January meeting of the Detroit Section, American Society of Refrigerating Engineers, by William Goodman, Chicago consulting engineer and professor of mechanical engineering, Illinois Institute of Technology.

In addition to Mr. Goodman's talk, members heard an unscheduled discussion of coil and air conditioning problems by Charles S. Leopold, Philadelphia consulting engineer and national president of the A.S.R.E.

### FUNCTION OF COILS

"Although coils are widely used in air conditioning work because of their compactness and efficiency, their operation is not so well understood," said Mr. Goodman, "for besides cooling, air conditioning coils also dehumidify air, which seems to confuse many people."

Pointing out that the functions and operations of coils must be considered in their relationship to the complete air conditioning system, Mr. Goodman first reviewed the basic principles of the psychrometric chart as used in designing systems to meet desired conditions.

"In heating design one first must calculate the heat loss, and then for a given heat loss the engineer has the choice of employing a large weight of air with a small 'temperature difference' between the air as it leaves the heating coil and the desired room temperature; or he can use a lesser weight of air at a higher temperature difference," explained Mr. Goodman.

### DEHUMIDIFICATION DIFFICULT

"The same principle applies to air conditioning (cooling), but with this we also have to take up moisture from the air. And it is difficult to dehumidify a room," he added.

"This means that in air conditioning we have to calculate the dewpoint temperature as well as the dry bulb temperature."

Mr. Goodman then explained that the "old way" to calculate an air conditioing system was to assume a given air quantity and then determine the dry bulb and dewpoint temperatures from that point. Use of the psychrometric chart requires knowledge of conditions in the room, including the sensible heat gain and the gain in moisture, he emphasized.

"We can get air in any condition we want if we use enough equipment, but that isn't practical," he commented.

Stating that the air leaving most commercial coils today is almost saturated, Mr. Goodman then explained by means of slides the actual conditions on the surface of the coil.

### CONDITIONS ON COIL

"The temperature of the metal wall of the tubing in the coil is always between the refrigerant temperature and the wet bulb temperature of the air, since there is usually a surface film of water on the outside of the coil.

"There is an air film next to the surface film of moisture which is usually saturated," he explained. "Although this film remains stationary, turbulence of the air tears away part of this air film and permits new air to mix in."

The amount of saturated air taken from this film around the coil is almost infinitesimal, but it does have its effect on the moisture content of the air passing through the coil, declared Mr. Goodman.

As air goes through a coil, the temperature of the surface film is constantly dropping, so that the air becomes colder. A shallow coil would mean that air would have a higher relative humidity at the same dry bulb temperature, he commented.

### COIL SELECTION

Since one can't always obtain coils of exactly the same ratings as required by the design conditions, one picks out the coil that will supply a slightly lower air temperature than design calculations call for, just as the heating engineer will select a heating coil with slightly greater capacity than design calculations if necessary.

Admitting that "there are conditions when air must be bypassed or reheated," Mr. Goodman contends that the "simplest way to introduce air into a room is at the temperature it leaves the coils."

The fact that air leaving the coil is virutally at the saturation point does in some instances complicate the use of air directly as it comes from the coil, Mr. Goodman said.

The classical explanation that no moisture is removed from air by a coil or air washer until it reaches the saturation point, and then the temperature is reduced while the air remains saturated is just a theory which does not work out 100% in practice, according to Mr. Goodman. To attain this condition "infinite heat transfer" would be required, he said.

### CLOSE TO SATURATION

The air that leaves a "deep" bank of coils in the average commercial system is, however, very close to saturation, which can present a serious problem in some air conditioning applications, Mr. Goodman said, citing a ballroom air conditioning system installed some years ago in Chicago.

Because of the considerable amount of latent heat given off by the dancers, the cooled air delivered at a point near saturation made for a "clammy" atmosphere, chiefly during actual dancing. Between dances the people present were adding much less latent heat to the ballroom, according to Mr. Goodman.

While a partial solution to the problem might have been increasing the amount of air supplied to the area, the only satisfactory answer is to bring the air up from the saturation point by reheating, Mr. Goodman said.

Reheating, however, does involve adding to the refrigeration capacity of the system, although less additional capacity is required in a reheating system when lower temperature air is employed, he added.

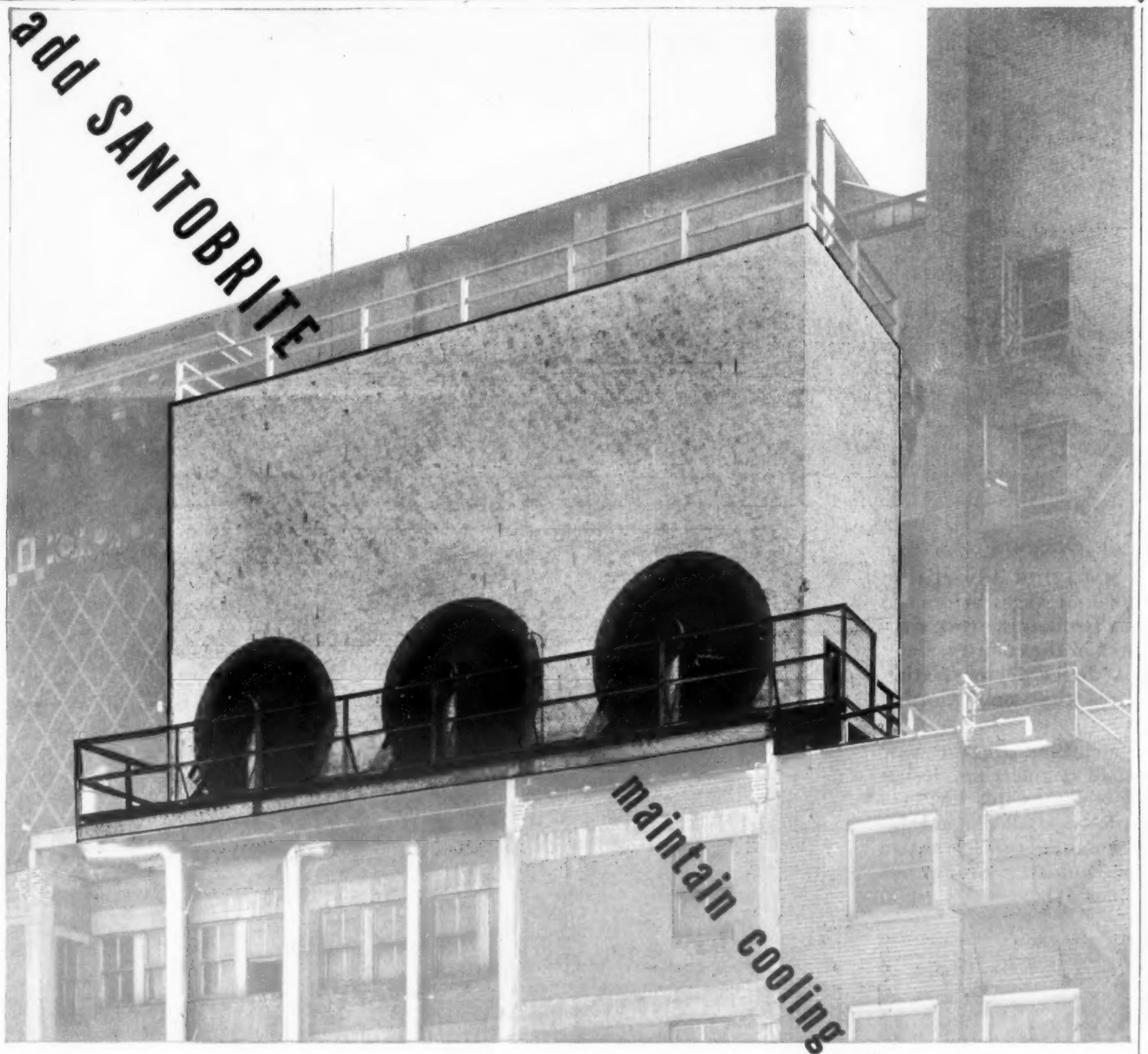
Methods of reheating include use of a steam coil, or even the condenser coil of the refrigeration system, which must give off heat, declared Mr. Goodman.

### SENSIBLE HEAT NEEDED

Another method of reheating by means of bypassing outside air can be satisfactory under ideal conditions, but the conditions of the outside air vary quite erratically, he explained. The actual addition of sensible heat is required for successful reheating, Mr. Goodman said.

Commenting on some aspects of Mr. Goodman's talk, Charles S. Leopold, who has engineered such engineering jobs as the famed Pentagon Bldg. in Washington, D. C., asked, "Why are there so many unsatisfactory air conditioning jobs?

*(Concluded on next page)*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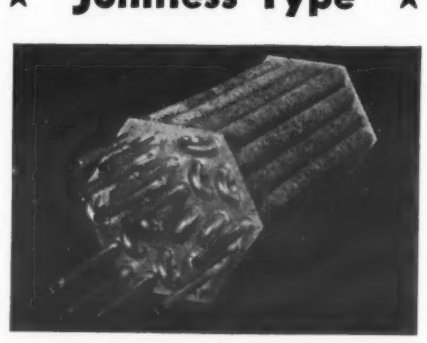

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# Advantages of Using Reheat or Bypass Methods of Conditioning Control Cited

*(Concluded from preceding page)*

"Mr. Goodman has been talking about single room and single occupancy conditions. Sometimes it is practical to use large quantities of air at a small T.D. when you have a variety of load conditions in several offices—usually with a bypass arrangement," suggested Mr. Leopold.

"There seems also to be a peculiar inhibition against reheating. People don't like to see the refrigeration system and the boiler working at the same time in summer," he continued, "but reheat is almost essential for satisfactory air conditioning in many circumstances involving multi-room structures.

### LITTLE HEAT USED

"The amount of heat used in reheating is tremendously small and its cost is exceedingly low, and, further, bypass and reheating methods help in the control of the air conditioning system," he added.

Taking the floor again following Mr. Leopold's comments, Mr. Goodman explained: "I have no quarrel with bypass for purposes of control, but there are some instances where it will work and some where it won't.

"In a theater, for example, where the load is largely a moisture load due to any occupancy which is variable, the bypass is quite satisfactory. But a hotel or an office building," continued Mr. Goodman, "which has a more or less constant moisture load and a variable sensible gets poor results with a bypass air conditioning system. Reheat is needed."

### 'RUN-AROUND' SYSTEM

At Mr. Leopold's suggestion, Mr. Goodman briefly explained the "run-around" system using the heat of entering air for reheating purposes. This system, which requires a large amount of air, doesn't work well in lower outside air temperatures, according to Mr. Goodman.

The advantages of using a bypass system over volume control in air conditioning was also mentioned by Mr. Goodman.

"Although volume control is quite similar to the bypass method, the bypass method doesn't cut down the volume of air and thus doesn't affect the air-throw through grilles and ceiling outlets, as does volume control," explained Mr. Goodman.

The meeting was concluded with Mr. Leopold discussing some of the problems involved in air conditioning the Pentagon Bldg.

Original design calculations for this building called for a total refrigeration capacity of more than 13,000 tons, but after the equipment had been ordered, plans for the building were changed by the addition of two more floors, Mr. Leopold revealed.

Revised calculations on the basis of the additions to the building brought the total peak load up to something over 15,000 tons, he said.

"After spending some time wondering whether to order additional refrigeration machinery or not, we finally decided that the tremendous amount of concrete in the building would absorb enough cooling effect to meet the added 2,000-ton peak load without more machinery," declared Mr. Leopold.

"And it worked."

## *Gabrilove Returns To Direct Shapiro Firm*

ALBANY, N. Y. — Lieut. Harold Gabrilove has returned as operating vice president to direct the operations of Shapiro Distributors, Inc., after 33 months service with the Navy.

With branches in Newburgh, N. Y., Springfield, Mass., and Burlington, Vt., Shapiro Distributors, Inc., handle R.C.A. Victor products, A.B.C. washers, and other major appliances.

Lieut. Gabrilove is also an active partner in Shapiro Sporting Goods Co. with headquarters in Newburgh, N. Y., which is a wholesale concern for appliances, sporting goods, and general merchandise in the Hudson Valley region.

## *'Chet' Battles Heads District for United*

J. C. BATTLES

* * *

ST. PAUL, Minn.—Appointment of J. C. "Chet" Battles as district manager of the midwest territory for the United line of commercial refrigeration cabinets, has been announced by R. S. Wieding, president and general sales manager of the United Refrigerator Mfg. Co.'s sales division of St. Paul.

Mr. Battles is well known in the industry through his long association with the Midwest Mfg. Co. of Galesburg, Ill., where he was sales and advertising manager. Midwest's commercial refrigerator business was purchased last year by United, the Galesburg firm now confining its manufacturing business to steel kitchen cabinets.

Acquisition of the Midwest business, new plants in Connellsville, Pa., and St. Paul, and the tripling in size of the main plant at Hudson, Wis., has greatly expanded the manufacturing facilities of United and permitted the addition of several more lines, Mr. Wieding declares.

## Fiberglas Corp. Buys Kansas City Plant

TOLEDO — Owens-Corning Fiberglas Corp. has been notified that the Reconstruction Finance Corp. has accepted its $650,000 bid for the purchase of a 35-acre industrial property in Kansas City, Kan. The purchase is said to be a major step in the Fiberglas expansion program.

Harold Boeschenstein, president of Fiberglas Corp., said that facilities will be installed to manufacture Fiberglas building insulation and roofing materials, pipe wrap used for protection against underground corrosion, industrial insulation, and equipment insulation. Part of the facilities planned for the Kansas plant will be used to manufacture fine glass fibers of a type newly developed.

Construction of buildings on the property, which is located in the Fairfax industrial area of Kansas City, is only one-fifth done, and Fiberglas engineers will start immediately to revise the layout and adapt design of remaining construction to requirements of the Fiberglas manufacturing operation contemplated.

## Atlanta Firm to Push New Equipment Sales

ATLANTA — A policy of putting greater emphasis on the sale of new refrigeration equipment has been adopted by Industrial Refrigeration Co., new firm name of the former McDonnell-Cawthon Co.

The company, formed here about a year ago by P. T. McDonnell and H. L. Cawthon, will feature Worthington compressors for ice and cold storage plants and Chrysler Airtemp units. Valves and fittings are among items to be stocked.

Industrial Refrigeration also announced admission of O. C. Freeman as a firm member. Mr. McDonnell and Mr. Cawthon will remain active. The three were with the York organization for several years as erection and maintenance engineers.

The company maintains repair shops and a warehouse on Flat Shoals Ave., S.E.

## La Crosse Cooler New Name For Novelty Box Mfg. Co.

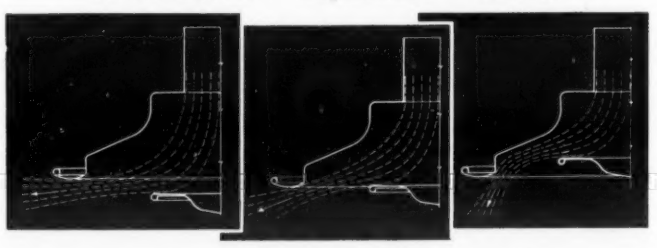
LA CROSSE, Wis. — La Crosse Cooler Co. is the legal name under which the La Crosse Novelty Box Mfg. Co. has been doing business since the beginning of 1946. This change in company name does not involve any change in management or company policy, W. W. Newberry, president, emphasized.

"The change has been deemed advisable as being more appropriate and fitting as applied to our activity in commercial refrigeration fields," he concluded.


**How *adjustable* air diffusers increase the efficiency of supply air diffusion.**

Better mixing of room and supply air, more uniform temperatures throughout the occupied zone and noiseless, draftless air diffusion are accomplished with

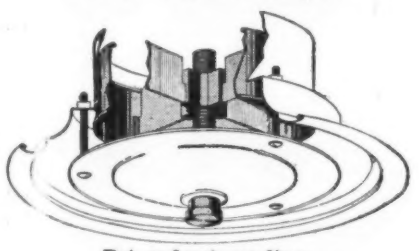
KNO-DRAFT *adjustable* Diffusers



**Any desired angle from verticle to horizontal at your fingertip.**

By simply turning the air adjustment screws (easily accessible from under the unit) the inner cone of any KNO-DRAFT Diffuser may be raised or lowered to secure any angle of air direction required by ceiling heights, system balancing, and individual or seasonal requirements. Thus the diffuser becomes more effective whether it is used in cooling, heating, ventilating, or combined systems, because it can expel chilled air parallel to the ceiling or eject heated air downward to prevent stratification.

**Type K Adjustable Diffuser with D Volume damper.**



Pat. and pat. pending

**Any desired volume at your fingertip**

Every KNO-DRAFT Diffuser can be equipped with a built-in volume damper (easily adjusted by hand-turning knob under diffuser) which varies the outlet aperture uniformly without affecting the outlet velocity or diffusion pattern.

Thus KNO-DRAFT Diffusers can be adjusted quickly and accurately to the angle and volume needed to meet a wide variety of conditions, and as a result, the factors of temperature variation, temperature fluctuation, drafts and noise can be minimized considerably.

The W. B. Connor Engineering Corp. maintains a staff of specialists and district representatives in leading cities to assist you with any air distribution problem.

FREE HANDBOOK

**Contains clear sketches, charts, dimension prints and instructive text that simplify the selection and installation of air diffusers.**

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**W. B. CONNOR ENGINEERING CORPORATION**

AIR RECOVERY AIR PURIFICATION AIR DIFFUSION

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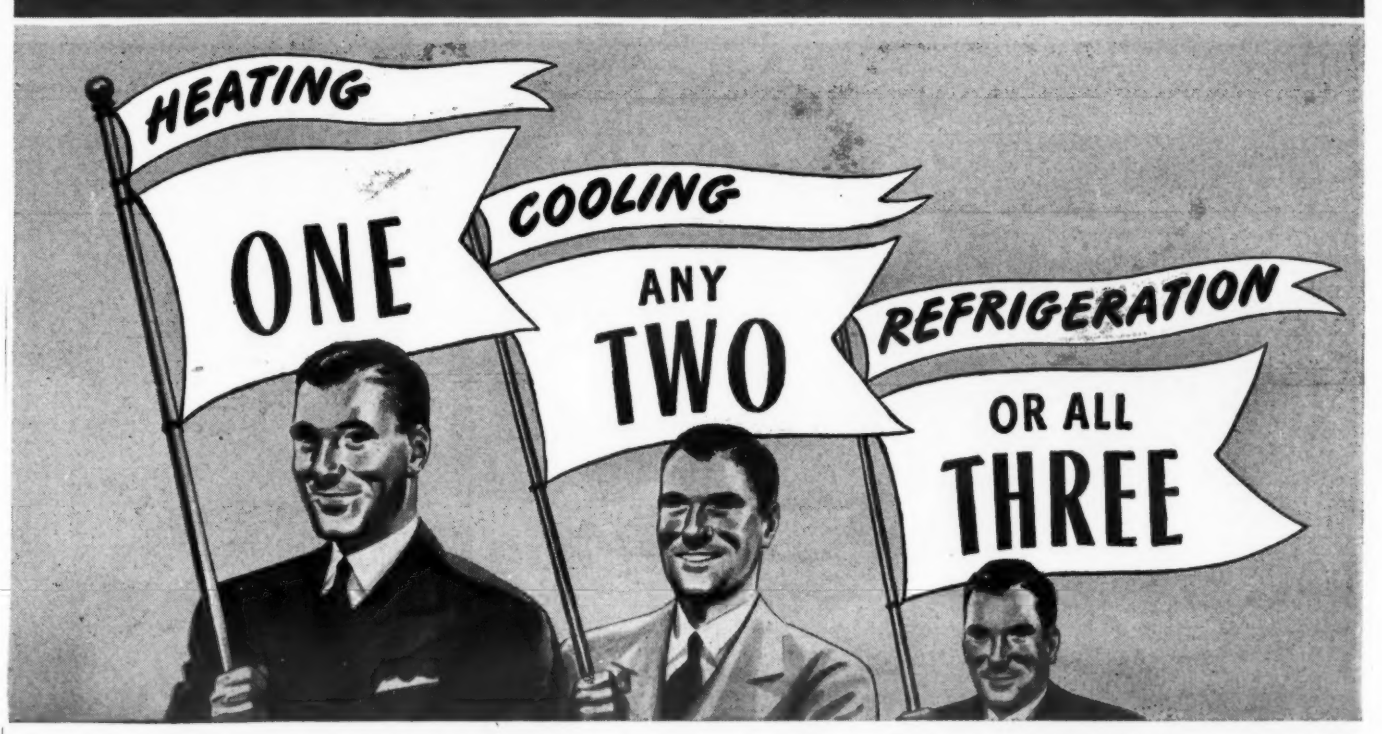
**CHRYSLER AIRTEMP**




**Up Front in the Profit Parade**

It's top policy at Chrysler Airtemp to be ever mindful of dealer profits. Everything—products, advertising, merchandising—is planned with this goal in mind.

A good example is the Chrysler Airtemp dealer agreement. Flexible, it is streamlined to fit any type of dealer in the heating, air conditioning and refrigeration fields. There's an agreement for any one Chrysler Airtemp line, any combination of two—or for all three! Here's opportunity for year 'round profitable dealer operation.

All products of Chrysler Airtemp are engineered, designed and mass produced for the volume markets—the places of greatest sales. It's "package" merchandise, priced right, easy to install and with a reputation for low upkeep and operating cost. Behind these products is Chrysler Corporation with its great reputation for engineering excellence and mass production skill.

Such products, prestige and company policy are putting Chrysler Airtemp dealers up front in the profit parade—and will keep them there. It will pay you to investigate now! Write to the Airtemp Division of Chrysler Corporation, Dayton 1, Ohio. • In Canada—Thermo-Rite Products, Ltd., Toronto, Ontario.

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AIR CONDITIONING
HEATING • COOLING • REFRIGERATION

## They'll Do It Every Time . . . . By Jimmy Hatlo

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T-TELL HIM IT'S READY. THE FISH & FISH REPORT TELL HIM (GASP) I FINISHED ON TIME.
IF YOU'RE REFERRING TO BIG GEORGE. HE'S GONE FOR THE DAY.!
GENERAL MANAGER
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JIMMY HATLO 9-11
Thanx To J. L. LOS ANGELES, CALIFORNIA
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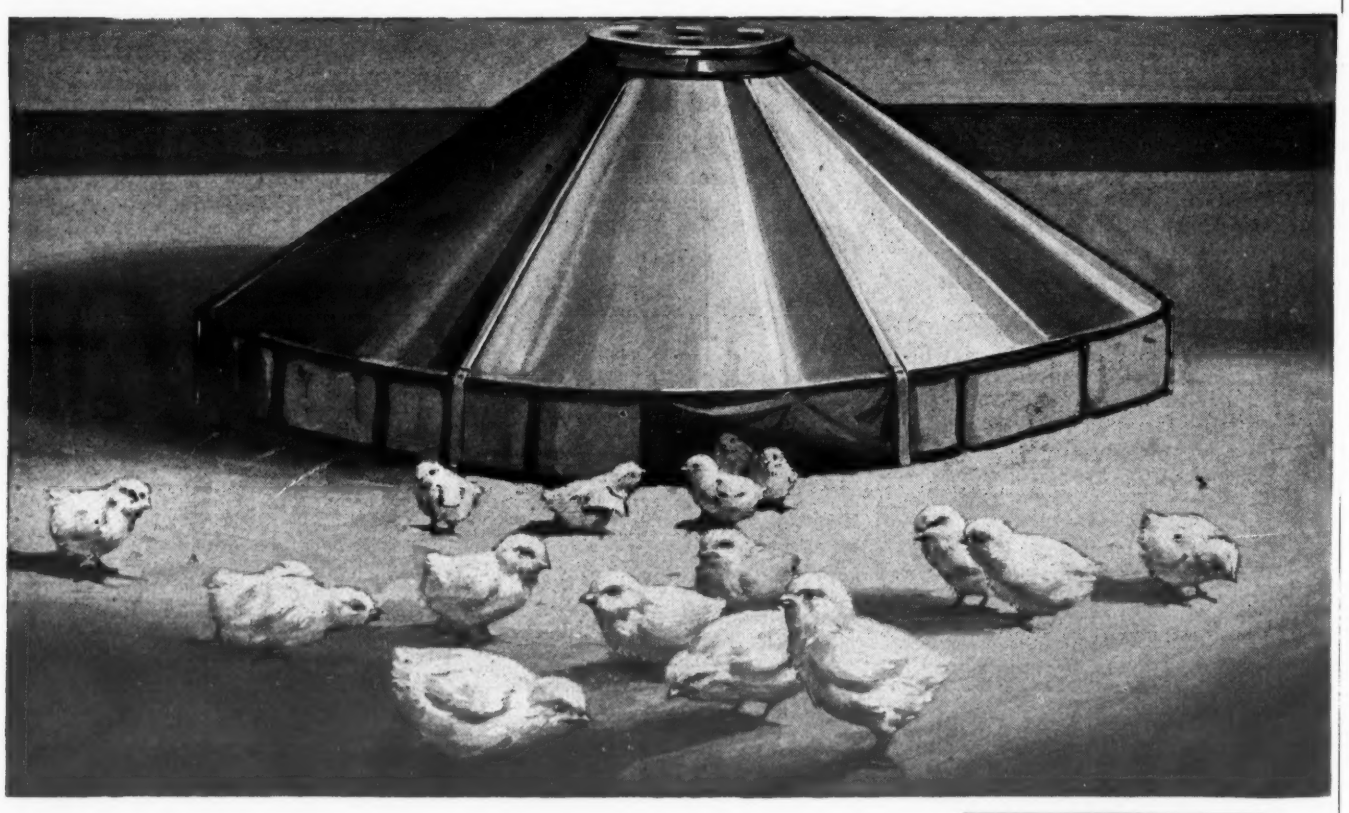
# BEHIND THE SCENE
## *there's a Torrington Air Impeller*



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AIR CONDITIONING AND REFRIGERATION News

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F. M. COCKRELL, *Founder*

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VOLUME 47, NO. 4, SERIAL NO. 880, JANUARY 28, 1946


# Why Men Strike

HANG onto your hats, fellows. Here we go again. After reading this editorial 90% of our subscribers will think we're crazy (the other 10% probably believe that already).

Recently we've been spending quite a bit of time talking to militant strikers—the men who slog up and down, hour after hour, in picket lines. We've had coffee with them, and bought a few beers, too. And we've listened.

Why? Because we were curious. Why do men take themselves off a payroll, deny their kids a good Christmas, force their wives and families to go hungry—and, in the process, make public asses of themselves by marching forlornly in freezing weather, carrying foolish signs?

Even if they get the pay raise—all of it—that they demand, they will have lost so much money in the meantime by not working that they may never catch up. What makes them do it?

Friends, there are forces at work on the mass of human beings which are seldom recognized. Most people aren't logical; they're emotional. And they react in self-hurting ways to the impact of events over which they have no control.

Col. Leonard S. Ayres, famed economist of the Cleveland Trust Co., has noted the amazing coincidence between the curves of spots-on-the-sun incidence and business depressions and booms. He wonders if cosmic rays may have something to do with mass optimism and pessimism.

And if Col. Ayres can speculate on the validity of so far-fetched a notion, perhaps we can broach some equally fantastic theories. Like this one: There is a connection between trouble in Java and Iran, and strikes in America!

Why do men strike? Well, here goes:

1. *It gives them a chance to spit in the boss's eye.* Secretly, most of us envy and hate those who have more money, more fame or prestige, or more power than we do. Sometimes that hatred is centralized on a handy person, like a foreman. Or, it may be directed toward a more or less mythical personnage whom the workman has never seen—like the president of a corporation.

When a flock of men get together and *strike,* they are expressing mass defiance of "the Big Shots." They are "putting them in their places." At the outset of a strike, at least, this very act of defiance gives the strikers a feeling of personal power.

2. *It expresses their anger at the turn of world events.* Nearly everybody reads newspapers today. And even the dumbest among us can see that the ideals of "One World" and "Eternal Peace" for which we thought we were working and fighting have been trampled into the dust.

Russia is gobbling up small nations—one after another—and ruthlessly extending her imperial domain. England has taken over the Dutch and Belgian colonial empires, and is crushing small nations which are making a bid for independence. And she's using Japanese soldiers and American tanks to do it!

No wonder the returning veterans we've talked to on the picket lines are cynical. What in the hell were they fighting for? It's the same old selfish rotten world, they argue. Why shouldn't they "get theirs," too?

3. *The atomic bomb has paralyzed people's minds.* Over and over again you hear this remark: "So what? We'll all be dead in 10 years. The next war will come soon, and atomic bombs will wipe out civilization. Let's have some fun while we can."

Fantastic, you say? To be sure. But so are human actions. Deeper currents run in history that participants in the making of that history realize or recognize at the time.

# Off the Chest

## 'I HOPE G-E WILL HOLD TO THEIR RIGHTS'

Harry H. Yauger Refrigeration Service
Vernon, N. Y.

Editor:

Have just read about the offer of G-E of 10%. As far as I have been able to understand, the U. S. Constitution, and also a late issue of a one cent U. S. postage stamp, contain the words "Freedom of Speech and Religion, from Want and Fear."

When a man is willing to work and wants to earn an honest living, he is not allowed to because of a bunch of strikers. If he attempts to go in and earn an honest dollar, he is most likely to land in the hospital, with a good chance of the undertaker having a job.

Where is our Freedom? I am not able to work for a manufacturer unless I pay a dictator for the privilege.

If I smash up or do damage to the property of others, I have to pay damages. But this law does not seem to apply to the Union men.

If we have a Free Country, let them hire Union men, or not, just as they choose.

I hope the G-E will hold to their rights as, according to our Constitution, we should have a Freedom that applies to both sides.

HARRY H. YAUGER

## ASSOCIATIONS FOR REFRIGERATION PARTS

Owen Refrigeration Equipment Co.
610 Cumberland St.
P. O. Box 94
Bristol, Tenn.-Va.

Editor:

We are interested in the name and address of the Wholesale Refrigeration Jobbers Association. We are entering the wholesale jobbing business and want to apply for membership in this organization. If you can send us this information, we will be very grateful.

ROY C. OWEN

*Answer:* Being not quite certain as to which association you have reference to, the following will describe some of them, and perhaps this will help to set you straight.

The Refrigeration Equipment Wholesalers Association, 920 E. McMillan, Room 202, Cincinnati 6, Ohio, is comprised of wholesalers of refrigeration parts and supplies, such as valves, fittings, tubing, refrigerants, evaporators, etc.

The Appliance Wholesalers Division of the National Electrical Wholesalers Association, 500 Fifth Ave., New York 18, N. Y., is comprised of wholesalers of major electrical appliances, such as household electric refrigerators, ranges, washers, etc.

The National Association of Refrigeration Contractors, 353 Hippodrome Annex, Cleveland 15, Ohio, is an organization now being formed, and the membership will consist of firms that sell and install refrigeration and air conditioning equipment.

By writing to these associations, you can get further information that you may need.

## 'I LIKE THE APPROACH'

Ericsson Telephone Sales Corp.
101 Park Ave.
New York 17, N. Y.

Editor:

I have just completed with great interest, your book *Great Day Coming!* and must say I like the approach to the whole subject.

S. T. ABERG

## ENJOYS 'VERY MUCH' USE OF THE 'NEWS'

Orange Belt Refrigeration Co.
263 South E. St.
San Bernardino, Calif.

Editor:

I would like to take this opportunity to advise you that I am the new owner and operator of the Orange Belt Refrigeration Co. at 263 South E. St., San Bernardino, Calif.

We will be the exclusive distributor for York air conditioning and refrigeration products and exclusive dealer for Weber Show Case products in San Bernardino and Riverside counties.

Having been formerly employed by W. S. Kilpatrick & Co. in Los Angeles, where I enjoyed very much the use of your publication, I can assure you that I do not want to be without it in the future.

THOS. E. TOPHAM

## REFRIGERATOR SHORTAGE IN JERUSALEM, TOO

Syriani House
Bethlehem Road
P.O.B. 1377
Jerusalem

Editor:

Through the courtesy of a business friend of mine, Mr. Mansfield of Chicago, I am now again a subscriber to your interesting paper which I had missed for a long time as exchange restrictions made it impossible to send you the dollars.

I have just received the first one and I found it just the same as years ago when I used to get it every week. The "Bad News" of the front page article brings really bad news for us out here just as much as for your dealers and consumers. We have not only a great shortage of mechanical refrigerators, but of ice, too, which makes our hot summer months sometimes really trying.

Most of our dealers have already long lists of orders, however, the majority of clients will be very disappointed, as they all expected their cabinets in time for the 1946 season.

MAX PETRUSCHKA,
Consulting Engineer

## INFORMATION ON PATENTS

Edward T. Klee
Detroit 26, Mich.

Editor:

You will recall our conversation of a few weeks back.

I am anxious to get the patent numbers involved in the suit of the Refrigeration Patent Co. against Stewart-Warner.

You were under the impression that this information might be available in your back files, and as soon as you were straightened out after your move, it might be found.

I would appreciate your advising, if numbers can be obtained without too much difficulty.

EDWARD T. KLEE

*Answer:* Patents Nos. 2,056,165 and 2,171,712.


**WANTED**

**Well-known manufacturer of refrigerating and air conditioning products has openings for the following:**

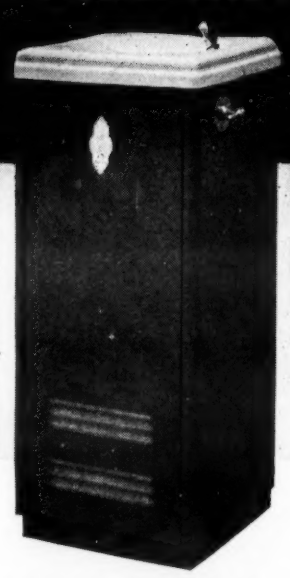
**DESIGNERS AND APPLICATION ENGINEERS—Should be experienced in the industry.**

**DRAFTSMEN—Experience in the industry not essential.**

**METHODS ENGINEERS AND ESTIMATORS—Experienced in the stamping, forming, cutting and assembling of metal components. Excellent opportunity for permanent connection. Location Chicago. Give complete details of your experience, salary expected and when available.**

**Box 1887, Air Conditioning & Refrigeration News**

*It's a* **REVELATION** *—that's all!*



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★ Now in quantity production
★ All sizes: Industrial and Commercial
★ The last word in...

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*Revelation Company*
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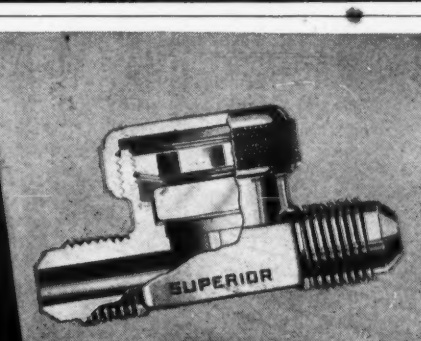
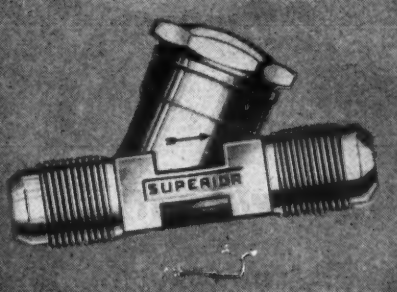
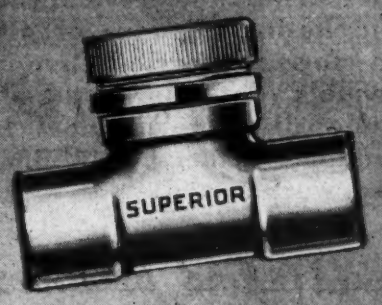
*Superior*
**"Non-Chattering" CHECK VALVES AND LIQUID INDICATORS**




**SUPERIOR CHECK VALVES**—unique design, positive acting, spring-operated—cannot chatter, hum or buzz under any normal operating conditions. Pressure drop is negligible. Install one in the suction line of each low temperature circuit of all low temperature jobs—your assurance of maximum performance and trouble-free operation.

**SUPERIOR LIQUID INDICATORS**—call them liquid indicators, sight glasses, or refrigerant shortage detectors—one should be installed in the liquid line of each system. Seal cap over sight glass is double assurance against damage and leaks.

*Note these exclusive features*

The novel design of these SUPERIOR Check Valves permits the easy removal of all internal parts—**as a unit**—while soldering lines to valve connections, or for subsequent inspection.

Entire upper assembly of SUPERIOR Liquid Indicators—in all sweat sizes—may be removed **as a unit** to preclude damage by heat while soldering lines to body connections.

No. 119

*If you haven't a copy of Catalog R2, request one today*

**SUPERIOR** VALVE & FITTINGS COMPANY
PITTSBURGH 26, PENNSYLVANIA
OFFICES IN PRINCIPAL CITIES · STOCKS: CHICAGO (6) · LOS ANGELES (15) · JOBBERS EVERYWHERE

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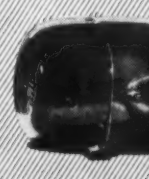
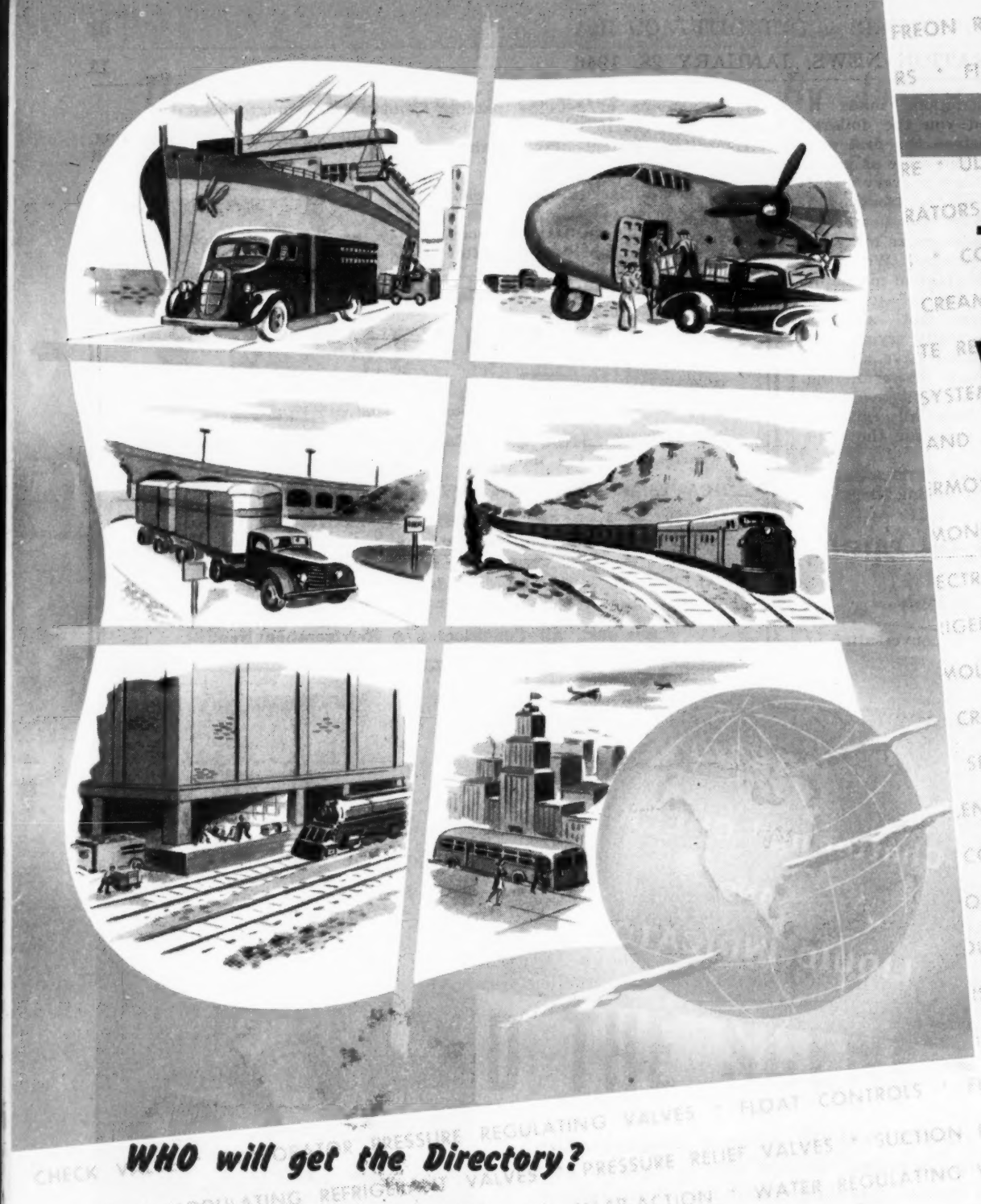


**ELECTRIC MOTORS FOR INDUSTRY SINCE 1915**

HOWELL ELECTRIC MOTORS COMPANY · HOWELL, MICH. · REPRESENTATIVES IN ALL PRINCIPAL CITIES



# What Do We Mean— "International" Edition?

***We mean that the market for American refrigeration and air conditioning products is no longer limited by national boundaries; that this year and future years will establish many a new world-known reputation for quality products; that distributors in other lands are not only willing but eager buyers of American equipment; that we will see to it that the Directory reaches key buyers everywhere--to introduce those who want to do business with one another; and that the guaranteed circulation of 28,000 is not only a complete blanketing of this country's huge sales potential, but is genuine World-Wide Circulation.***

## WHO will get the Directory?

**Manufacturers, assemblers, manufacturers' agents, distributors, dealers, jobbers, public utilities, chain store appliance merchandisers, service companies and service men, importers, purchasing missions of other governments, commercial attaches in foreign service, nationalized import combines, and trade schools, both here and abroad, covering both commercial and nationalized government buyers, including a big and carefully chosen, financially substantial foreign-buyer list in all parts of the world.**

## WHAT kind of Directory is it?

**The Second International Edition of the Refrigeration and Air Conditioning Directory is a completely new reference volume for buyers, listing manufacturers of all products used in the refrigeration and air conditioning industries, including an executive personnel register, cross-indexed for convenience, and arranged for greatest usefulness. The Directory is published by the editors of Air Conditioning & Refrigeration News, and is widely used by buyers in all phases of the industry.**

## WHEN will it be off the press?

**The Second International Edition will be off the press by Springtime, in time to be of most use in introducing old and new manufacturers to the many new postwar buyers who have entered the business, and in good time to re-establish the position of suppliers among thousands of their old reliable customers who, of necessity, have been inactive during the war. Established in 1929, the Directory was published annually before the war and was temporarily suspended only during the years when suppliers were unable to furnish their merchandise to commercial consumers.**

## WHERE will it be used?

**The Directory will be used where people buy American refrigeration and air conditioning products—in the purchasing offices of a St. Louis distributor—on the desk of a millionaire Bombay importer—in the specifications room of an Auckland assembler and manufacturer—at the headquarters of a Russian electrical combine—within the U. S. Consulate at Rio—and by the thousands of buyers who make up our great reborn domestic dealer and service company market in all sections of this country.**

## WHY will suppliers advertise when listings are free?

**Since the beginning of a mass-production market for refrigeration products, most manufacturers have used catalog-style copy (including many multiple-page inserts) to supplement their free product listings; to give their potential customers details of types, sizes, trade names, specifications, illustrations, and prices; and to make the Directory a complete guide for prospective buyers of their products. Now, with the greatest immediate need and demand for a new Directory we have ever known, most manufacturers can exhibit their products economically and profitably before the entire industry in the Second International Edition of the Refrigeration and Air Conditioning Directory. Your advertisement will be in good company.**

## THE SECOND INTERNATIONAL EDITION—1946

# Refrigeration and Air Conditioning Directory

**Business News Publishing Co., 450 West Fort St., Detroit 26, Mich.**

*Philco Engineering Chief*

DAVID B. SMITH

* * *

## Philco Names Smith As Vice President

PHILADELPHIA—David B. Smith, director of the Philco research division since 1941 and an outstanding authority on radio, radar, and television, has been appointed vice president in charge of engineering of Philco Corp., it was announced by John Ballantyne, president.

Mr. Smith joined Philco in 1934, after receiving the degrees of S.B. and S.M. in electrical engineering from the Massachusetts Institute of Technology, from which he was graduated in 1933 with high honors. Serving first as a patent engineer on radio, television, and other applications of electronics, he was later placed in charge of a special advanced studies group in the Philco research and engineering department.

He was appointed technical consultant to the vice president in charge of engineering in 1938, and was promoted to director of research in 1941. In this capacity, he directed the fundamental microwave and ultra-high frequency research that led to the production of many important types of airborne radar used by the Army and Navy.

He has also taken an active part in the development of television and in the establishment of national television standards. He was a member of the original Television Committee of the Radio Manufacturers Association, and chairman of Panel 9 of the National Television Systems Committee in 1940. Elected to the Radio Technical Planning Board when it was organized, he served as chairman of the Board's Television Panel, which formulated and presented a detailed postwar program for the television industry to the Federal Communications Commission. In November, 1945, he was named chairman of the new Television Systems Committee of the RMA at the association's fall meeting.

A member of Tau Beta Pi, engineering honorary fraternity, Mr. Smith is the author of various technical papers in the fields of television, frequency modulation, and mathematics, and is now serving as chairman of the Philadelphia Section of the Institute of Radio Engineers. He is credited with a number of patents and patent applications, covering inventions in radio, radar, and television.

## Peaslee-Gaulbert Plan 'Clinics' To Prevent Dealer 'Let-Downs'

SAN ANTONIO, Tex. — If appliance retailers get into a hopelessly confused competitive situation again, it won't be the fault of Peaslee-Gaulbert Corp. here—because this large west Texas appliance distributorship will hold continual "retail clinics" to guard against it.

Peaslee-Gaulbert, which will distribute several national refrigerator and other appliance lines, is "dead set" against uninspired retail merchandising which wound up in price cutting and generally unsatisfactory conditions in appliance retailing before the war. It feels that most of this stems from the inability of many retailers to use showmanship and glamorous selling methods constantly, and thus will run its retail clinics to "make merchandisers out of mere dealers."

The clinics will be held on the second floor of the new building which Peaslee-Gaulbert recently completed, where more than 15,000 sq. ft. of floor space will be available. Included will be a series of miniature appliance departments and sales floors, which will depict new ideas in presentation of appliances and furniture. Examples of visual selling, window display "active demonstrations," coordinated selling and complete kitchen merchandising will be included, along with classes on installation of appliances, and customer-approach for new sales personnel. Merchandise displays will be changed at least monthly, as fast as Peaslee-Gaulbert can learn of new ideas, and all retailers buying through the distributor will be invited to make regular visits.

"The idea is to teach the appliance retailer to make the most of the selling features of his merchandise," it was pointed out by Dempsey Berryhill, branch manager, "and to sell it on the basis of its worthiness, rather than on a price basis as compared with another dealer's stock."

## West Penn Promotes 3 In Sales Dept.

PITTSBURGH—Three West Penn Power Co. employes have been promoted to new positions, according to Vice President P. H. Powers.

John E. Mueller, manager of the commercial customer department, has been appointed assistant sales promotion manager and will continue in direct charge of the commercial customer activities.

Logan R. Cole, Keystone Division sales manager, who has been located at Ridgeway, Pa., will be transferred to Pittsburgh as manager, residential customer department, and will report to sales promotion manager Harry Restofski.

The residential customer department is a new subdivision of the sales promotion department and will include all residential sales promotion, covering the work of the dealer, display, and- home economics sections and the electric home bureau.

Fred C. Schwerer, who succeeds Mr. Cole as Keystone Division sales manager at Ridgway, has been assistant to the manager of the industrial customers' department since 1943.

*Heads Frigidaire Branch*

J. H. MITZELFELT

* * *

## Mitzelfelt Named Frigidaire Chief In Capital Area

DAYTON—J. A. Mitzelfelt, a veteran of 20 years with the Frigidaire sales organization, has been appointed branch manager of the Frigidaire Baltimore-Washington branch, R. H. Huston, eastern regional manager of Frigidaire, has announced.

Mr. Mitzelfelt, who began his association with Frigidaire as a salesman for J. J. Pocock, Inc., Frigidaire distributor in Philadelphia in 1926, held the positions of retail representative, district representative, provincial sales manager, educational director, and metropolitan sales manager with the Pocock organization prior to being transferred to the Frigidaire factory in Dayton in 1937.

During the past eight years he has been southwest zone manager, on special assignments for the appliance sales department, in charge of the farm replacement and the new building markets, and assistant appliance sales manager.

L. W. Curl, former branch manager of the Baltimore-Washington district, has been assigned to Birmingham, Ala., where he served as branch manager prior to the war.

## Holst Engineering Head For Crosley Audio, Television Divisions

CINCINNATI — Appointment of Paul F. G. Holst, as engineer in charge of audio and television development in the manufacturing division of The Crosley Corp. has been announced by L. M. Clement, Crosley vice president in charge of research and advance development section, which is under the supervison of John D. Reid.

Mr. Holst will head up a section devoted to development work on television receivers, audio amplifiers, loud speakers, phonograph pickup, and noise and vibration reduction problems.

Mr. Holst was born in Herning, Denmark, and is a graduate of The Technical College of Copenhagen, Denmark. He came to this country in 1928 and entered the engineering department of the General Electric Co.

## St. Louis Credit Men To Eye Appliance Credit Practices

ST. LOUIS—Edward Fey, credit manager of the Biedermann Furniture Co. here, has been elected president of the Associated Retail Credit Men of St. Louis. He succeeds Tuscan Boaz, assistant credit manager at Boyd's.

Efforts will be made by the association to put a damper on too-liberal credit setups by appliance dealers, particularly in the case of trade-in allowances and "nothing down" business, it was explained.

The group has set up a special credit structure for electrical appliance merchandising by which all St. Louis dealers will operate in the future.

Walter Menzenwerth, St. Louis Dairy Co., was elected vice president and A. J. Kruse, manager of the Credit Bureau, secretary.

## *Krich-Radisco Names Four To New Posts*

NEWARK, N. J.—Four personnel changes have been announced by Krich-Radisco distributors here. Arthur J. Hirsch has been appointed merchandising manager of the distributorship, Russell J. Stier was named manager of Krich's RCA engineering products division, and Major Barney G. Krich and Sgt. Sy Kody have returned from overseas duty to assume their former positions of company executive and manager of the record division, respectively.

Mr. Hirsch has 20 years of experience in the radio and appliance fields, and for the past 10 years was branch manager for General Electric in the New Jersey area. For three years, he has conducted extensive marketing analysis and research work.

In his new capacity, Mr. Hirsch will be responsible for the development of merchandising plans covering all products distributed by Krich-Radisco.

Having been associated with RCA for 16 years, Mr. Stier has had varied experience in the sound and communications field as background for his duties at Krich-Radisco as manager of the RCA engineering products division.

Mr. Stier's assignments at RCA included: assistance in the design and development of plant-wide RCA sound systems, and development and supervision of the installation of many of the largest systems made by the company throughout the country.

After receiving final release from the army, Major Krich assumed his former duties in December. Being among the first to enlist in the pre-Pearl Harbor period, his release rounded out five years of service.

Sgt. Sy Cody returned to Krich-Radisco after seeing combat service with the airborne division of the army in Europe.

## C. H. Wagner Elected Parker Vice President

CLEVELAND—C. H. Wagner, Jr., secretary of the Parker Appliance Co., has been elected vice president of the company. He joined Parker Appliance as office counsel in 1941, was elected assistant secretary later that year, and secretary in 1943.

*Agaloy District Manager*

T. L. LEE

* * *

## Lee Will Represent Agaloy In Northeast

NEW YORK CITY—T. L. Lee has been appointed by the Agaloy Tubing Co. of Springfield, Ohio, as district manager for New Jersey, New York, and New England areas with offices located at 75 West St., New York City.

Mr. Lee was formerly assistant manager of tube sales for Peter A. Frasse, Inc.

## Weisgerber Executive V.P. Of Lister-Blackstone, Inc.

MILWAUKEE—F. Rankin Weisgerber, formerly with Woodall Industries, has been appointed executive vice president of Lister-Blackstone, Inc., manufacturer of Diesel motors, many of which are used in generator sets for refrigeration systems aboard ship and ashore, it was announced recently.


**REFRIGERATION AND AIR CONDITIONING DIRECTORY**

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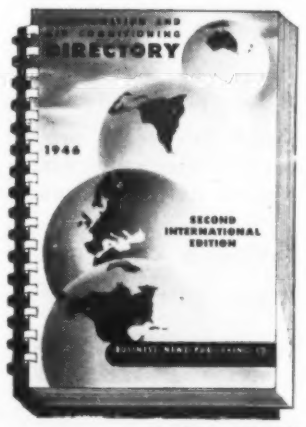


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# *Appliances Shown at Furnishings Marts, and the 'Word' on Production, Deliveries*

*Editor's Note:* This year's mart was the biggest ever. The story of what items manufacturers had to show is one story, reviewed here. What manufacturers, buyers, dealers, and returning veterans had to say about conditions is another story. It will appear in a future issue.

**By Ross Potter**

CHICAGO—It was the biggest, the noisiest, and the most crowded national furniture mart that Chicago has ever had.

All previous records of the number of appliances shown and the number of buyers who would have liked to buy, were broken.

Everybody wanted "to get inta de act." There was even an "air conditioned refuse container . . . distinct from the ordinary garbage can in that its construction permits free circulation of air through the refuse, thereby preventing fermentation." Additional feature: a deodorizing agent discourages any possible other unpleasantness.

The single appliance that dominated all major manufacturers' showings was the home freezer. It appeared in more exhibits than any other item, topping even refrigerators and ranges.

Here is what the major appliance manufacturers, lined up alphabetically, had to show:

### *Admiral*

One of the three top exhibits for color and layout, Admiral had its full line of freezers, refrigerators, ranges, and radios on display in the flesh or in picture form.

The company's top model will be produced in two sizes, 7 and 9 cu. ft. Sales features emphasized in the display were the separate freezing area, and "No defrosting"—evaporator coils are in the cabinet wall, and a baffle strip inside collects the moisture as it forms and drains it into a removable moisture bin.

Admiral's two other models, the standard (in 7.9 and 9.9 cu. ft.) and the deluxe (in 7.5 and 9.5 cu. ft.) already are in production. Delivery will be first probably on the deluxe, officials believed.

Only one home freezer, an upright 7-cu. ft. model, is being planned, with production date uncertain. The two ranges exhibited, standard and deluxe, may reach delivery by Mar. 1.

### *American Refrigerator*

American Refrigerator & Machine Co. is already in production on its line of four freezers and four bottle coolers. Freezers will come in 8, 15, 22, and 30 cu. ft., the coolers in 6, 8, 10, and 12.

Basic design of the company's beverage coolers has individual lift doors that slide back under the counter or can be taken out completely during busy hours. Multiple fans force circulation. Lucite handles are used on the freezers. Deliveries are expected within 90 days.

### *Apex*

Not exhibited throughout the period of the market but shown to the press in a special preview on the market's opening day, Apex's automatic washer was presented as something new in washing action for a less harsh and more thorough treatment of clothes.

Operating principle is one in which the clothes are bounced up and down in suds rather than agitated or spun. A series of finlike baffles around the perforated aluminum basket causes the clothes to turn over slowly.

A spinning action is used to expel soapy water and three successive rinses, after which the basket's bouncing motion fluff-dries the clothes. No permanent plumbing installations or bolt fastening to the floor are required.

Controls were on the top surface of this model, but front controls will appear as soon as the washer begins quantity production in February. There will be several sizes. No cost has been assigned, but it will probably run a little over $200, officials said.

### *Ben-Hur*

Production is getting under way on both Ben-Hur freezers, which are chest type, with front panel control and indicator. The 6-cu. ft. size has one door, and its temperatures may be set for freezing or for storage. The 12.5-cu. ft. size has a separate compartment for each.

### *Coolerator*

Production on the company's 15.5-cu. ft. freezer started Jan. 21; its 6.5 model will start sometime this spring. There will be four refrigerators, running 7½, 8¾, 9½, and 10½ cu. ft., with the second of these probably coming off the lines first.

There will be compressors for the larger freezer and the two largest refrigerators, with the latter probably appearing as two-temp units.

### *Crosley*

Refrigerators and radios are now in production, and kitchen cabinet orders were being taken for spring delivery. Ranges, automatic laundry equipment, and home freezers will appear probably during the summer.

A mockup of Crosley's new automatic washer was shown to dealers at the Stevens on Jan. 4, before the mart opened, but its present experimental status was such that neither final design nor production possibilities made it ready yet for public showing.

### *Deepfreeze*

The double-chambered model home freezer is the only one practical even for the small family, Deepfreeze officials believe, but the single-chambered model also exhibited at the mart is intended to prove that point.

A Panelyte cover weighing 2½ lbs. has replaced the former 18-lb. solid rubber lid, with a larger knob that makes it easier to handle.

Absence of defrosting troubles was emphasized in the company's presentation. The cooling coils go all the way to the bottom of the chamber, so that all areas are equally refrigerated and no temperature differences exist to promote condensation. A Panelite inner liner discourages condensation around the collar.

The double unit has been in production since last September. The single will begin in March.

### *Eureka, Evans*

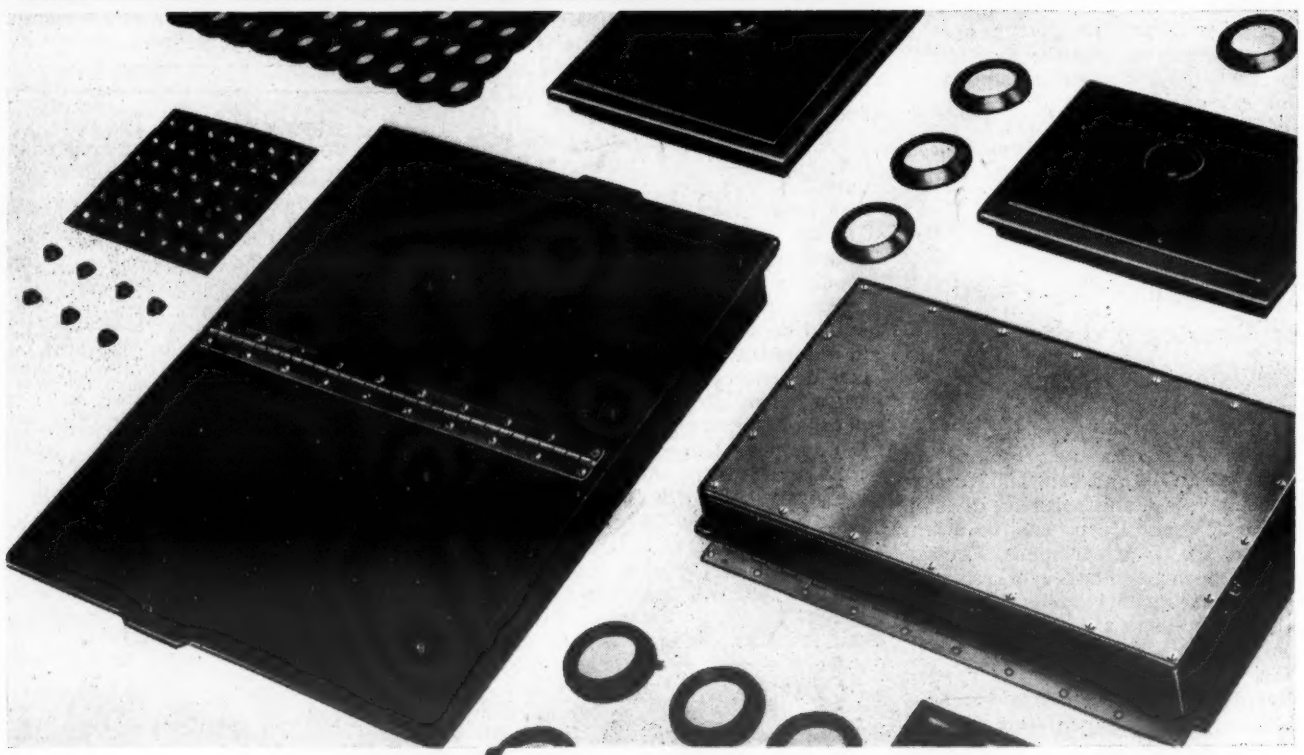
Both these companies (Eureka Williams Corp. and Evans Products Corp.) came out with garbage disposal units, in each instance a prewar development but a postwar sales item. Evans definitely is planning no other kitchen items. Eureka exhibited its new cordless iron and its established line of upright and tank model cleaners. Production plans for both garbage disposal units: indefinite.

### *Frigidaire*

Kitchen cabinets have been added to complement a complete Frigidaire electric kitchen. The company is planning to set up instructions in kitchen planning for its dealers, with

*(Concluded on next page)*

plastics



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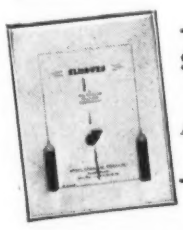
The Ansul Research Staff
REPORTS ON:

SLUDGES

Approximately 90% of the sludges produced in refrigerating systems are due to moisture. The exact cause can always be determined by analysis, but the appearance of the sludge (see photos) is usually indicative of the cause.

**SLUDGE DERIVED FROM MOISTURE**— If water is present in a machine, the nature of the sludge depends upon the type of refrigerant and length of time the water is present. All refrigerants ... sulfur dioxide, methyl chloride, Carrene and "Freon-12" ... react with water to produce corrosion products characteristic of each. To prevent sludge, the amount of water present in a refrigerating system must be small enough to avoid ice separation and corrosion. For "Freon-12" and methyl chloride, a quantity of water approximately .05% by weight will cause corrosion; the limit is somewhat higher for sulfur dioxide.

**SLUDGE DERIVED FROM OILS**—Oil sludges are characterized by total or partial solubility in carbon tetrachloride, gasoline and similar solvents. It is generally presumed that oil sludges are due to two causes: (1) an interaction between the unsaturated constituents of the oil and the refrigerant; (2) a breakdown of the oil due to heat, oxidation, friction, etc.



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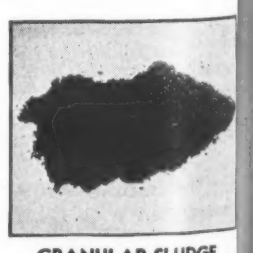

GRANULAR SLUDGE
... due to moisture

FLUID SLUDGE
... due to oil

HARD SLUDGE
... due to moisture and oil

ANSUL CHEMICAL COMPANY
MARINETTE, WISCONSIN
DISTRIBUTORS FOR KINETIC'S "FREON-11," "FREON-12," "FREON-21," "FREON-22" AND "FREON-113"

# Products Shown at the Winter Marts--

*(Concluded from preceding page)*

packaged centers in standard sizes to go with its refrigerators, ranges, and sink units.

Nine refrigerator models were shown, ranging from apartment house sizes (4 cu. ft.) to the company's top line of Cold-Wall boxes (13 cu. ft.), six ranges, and a full line of beverage coolers, reach-in commercial boxes, air conditioners, and condensing and cooling units.

Postwar models of the company's new water heaters were on display, featuring a heating unit that is immersed directly in water. Shaped like a sickle, the unit expands and contracts to throw off scale formation. These are already in production.

### *General Electric*

G-E's now completely automatic dishwasher and its electric blanket were the two items given greatest interest.

The company's full line of appliances was displayed, including five refrigerator models (all in production, but only three priced), three ranges (all in production), home freezers (chest type, in production), and automatic laundry.

In the automatic laundry, the clothes dryer was on maiden exhibit in this model. G-E made one before the war, but it didn't reach national distribution proportions.

Pressing a single button on the company's automatic dishwasher starts a complete cycle of 14 operations. The top lifts up after the dishes' final rinse, and the heat of the dishes evaporates the moisture on them. Kitchen sink and cabinet units, made to G-E specifications, completed the kitchen.

### *Gibson*

Gibson had the three major kitchen items on deck—refrigerators, ranges, and home freezers. A pioneer development in 1935, Gibson's flat freezer shelf is now standard with all three sizes: 6.73, 7.14, and 7.21 cu. ft. Only one freezer is planned for the present, twin to the 7.14 refrigerator.

Two ranges are in production, the standard and the deluxe. Both models have a 6 qt., 1,200 watt well cooker, a non-rigid oven door that will maintain its seal even after warping, and end panels that are both reversible and interchangeable in case the corner that shows gets bruised.

### *Hotpoint*

In contrast to G-E's dishwasher, Hotpoint's is a front-opening model. Advantages claimed are the efficiency of its top spray, uninterrupted use of its working surface, and easier access to its lower rack.

It will handle a service for eight, and the complete cycle takes no more than an hour: 20 minutes for washing the dishes, 20 for them to dry (a Calrod unit within steps this up), and 20 for them to cool off.

### *Kelvinator*

Four new refrigerator models and three ranges featured Kelvinator's display. The three 7-cu. ft. models already are under way, the 9 will be soon. A complete kitchen was shown with Morton sink, base, and wall cabinets filling out the company's line.

Top refrigerator was a triple range unit that will freeze and store frozen foods, preserve those with high moisture content, as well as handle regular foodstuffs. Temperatures may be varied within 13 settings.

Featured in the company's top range is a warmer drawer thermostatically controlled for keeping food at serving temperature, for keeping rolls hot or dinner plates warm.

The first home freezer planned will be a 6.04 unit standing about 36 in. high and holding better than 210 lbs. of frozen foods. No prices or production yet. The company's intended production figure for all appliances: 1,100,000 units a year.

### *Major*

Major Home Appliances, Chicago distributor for the Amana freezers, had three of the company's models to show—5, 30, and 123 cu. ft. Possible in the near future are a 9 and a 20. The 30 and 123 already are in production, with the 5 slated to begin before the end of this month.

### *Norge*

A full line of refrigerators, freezers, ranges, and a new idea in water coolers were shown by Norge. Called the "Water Boy," the new cooler will hold a 1 gal. or a 5-gal. bottle, and should sell for less than $100, Norge officials believe. It is meant for homes and for small offices. Production is hoped for late this spring.

Sales points stressed in the company's postwar refrigerators were their sealed evaporators, allowing no odors in the ice cubes, a meat tray that doesn't have to be removed during defrosting because of an intermediate tray that catches moisture and sluices it into a removable bin at the rear, and a pressure feature that springs the door open upon elbow pressure when your hands are full.

The standard refrigerator is the only one that will be in production during the next 90 days. Others, featuring a long freezer compartment down the right side, offer unusual storage facilities—one 7-cu. ft. model will take six qts. of milk and 17 bottles of beer on one shelf.

Norge's standard range is now in production, and the deluxe model should follow shortly. A new plant is now being built in Muskegon, Mich., and with the plant already there will turn out refrigerators and space heaters. All ranges now flow from the factory at Effingham, Ill.

Four sizes of freezers will be made by Norge, in 6, 11½, 18½, and 26 cu. ft. They will be chest type, and with good luck deliveries will begin in 30-60 days, officials said.

Two air conditioners, in ½ and ⅓-hp. sizes, were on display, hermetically sealed packaged type units. Higher refrigeration capacities have been attained through having the moisture-laden air within a room recirculate over the coils, and drip is cut to a minimum. The exhaust fan is reversible to act as an inductor for fresh air.

A feature of the ⅓-hp. condensing unit displayed was its setting on a track that will allow its removal for servicing, once shutoff valves have been turned, without removal of the low side. Application of the unit was stressed for home freezers, large refrigerators, industrial water coolers, and the like. This also is in production.

### *Philco*

Out with an entirely newly designed line of refrigerators, the Philco exhibit showed three 9-cu. ft. models, six 7's and a 6. The top unit features the Conservador, with a special latch that will open one or both doors with a single motion, a large freezer locker, and a foldaway shelf that will allow bulk food storage when the occasion demands.

The company's four freezers run 2½, 5, 7½, and 10 cu. ft. The two largest are upright models. All will go down to 25° below F., it is claimed, and have warning bells that notify the user when power is cut off.

Throughout the first week of the mart, Philco FM receivers tuned in an hour of special music broadcast each day by Chicago's WGNB, sponsored by Philco to show the extreme range fidelity of its new 14 tube FM receiver.

### *Pressed Steel*

Range design is one that puts all four cooking units across the back of the range. It was voted for by a majority of 4,000 housewives interviewed by BH&G for a model kitchen with facilities and specifications based upon these returns. Reasons given: the units are out of reach of children's hands, and the arrangement provides a more completely usable working surface.

Two other cooking unit arrangements are available with the range; the oven is unusually large. In addition to these features, it will include a controlled outlet by means of which the housewife can wake up to the aroma of coffee ready for the cup, a signal light for well cooker operation, and others.

Production is still around the corner. The company has announced its plans eventually to manufacture a complete line of home appliances.

### *Refrigeration Corp. of America*

This company's recent purchase by Noma will represent no change in production schedules, which now include 6, 14, and 20-cu. ft. freezers. On display, but not yet in production, was RCA's sectional walk-in cooler. Made of prefabricated aluminum sections, it can be expanded from 162 cu. ft. to 780.

### *Sanitary*

One model of the company's "Quicfrez" units has been in production since September, and has continued under a schedule calling for 100 additional units each month. This is a 12½-cu. ft. chest having two compartments (the smaller, 3 cu. ft., for freezing) powered by a ⅓-hp. compressor.

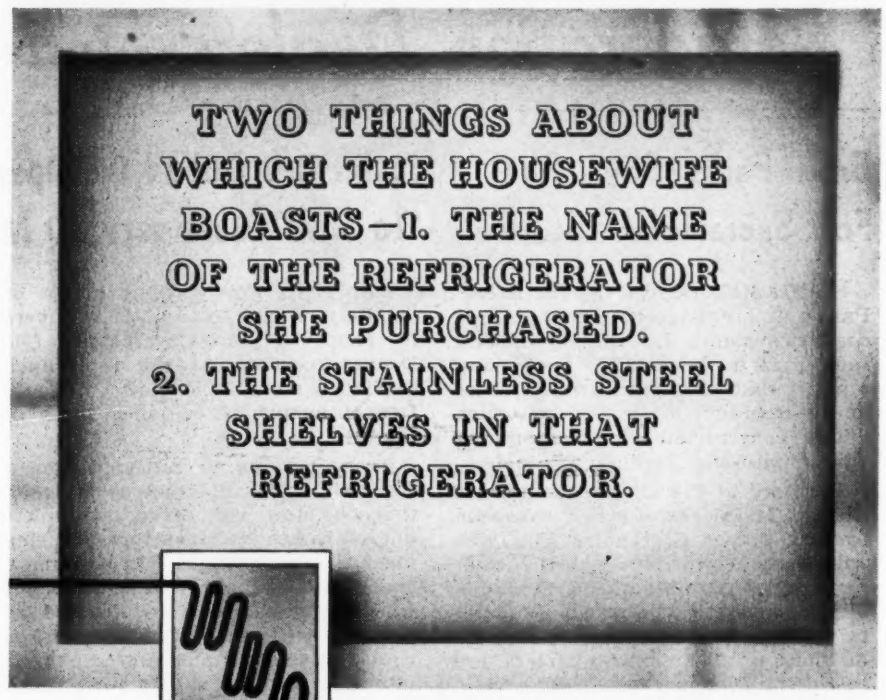
In immediate prospect is a 6-cu. ft. unit. After that will come 3 and 8-cu. ft. chests and an upright farm locker with three-way refrigeration, capacity probably 20 cu. ft. Production dates on these are, of course, uncertain. Trailer refrigerators, beverage coolers, and frozen food dispensers are in the company's future plans.

### *Westinghouse*

The company's complete line of appliances was exhibited, with home freezers and the automatic laundry getting the most attention. The freezers were shown in three sizes—6, 16, and 25 cu. ft.—all in the upright design introduced by Westinghouse last year. No prices or production yet, but the company hopes for a figure of less than $200 for the 6, and for production in the second quarter.

In the planned laundry section, the company's automatic washer appeared with a five-year warranty on its sealed transmission. The dryer was a new item, also fully automatic, with production hoped for by summer.

All Westinghouse appliances will be completely styled by Lurelle Guild, a nationally known authority, with electric irons already displayed. The company's complete line of more than 20 radios will be complete late this spring, officials believed.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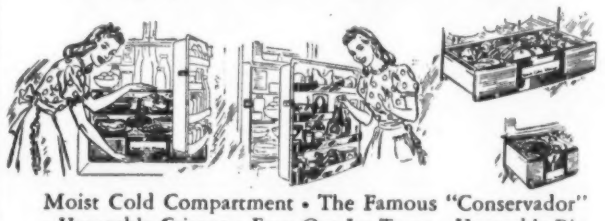
Every new Philco Refrigerator, from the lowest priced model up, has a built-in Freezer Locker for food freezing and frozen storage. No refrigerator is complete today unless it offers frozen storage space . . . it's *a must* in the modern refrigerator. *And every Philco has it!*

AND IN ADDITION...COMPLETELY EQUIPPED THROUGHOUT
*the Refrigerator with All the Features*



Moist Cold Compartment • The Famous "Conservador" • Vegetable Crisper • Easy-Out Ice Trays • Vegetable Bin . . . Yes, at every price, Philco brings you the most lavishly equipped refrigerators ever offered in the industry . . . every feature that means *value* to your customer, and *sales appeal* on the floor.

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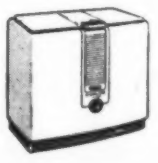

FOR SHARP FREEZING AND SUB-ZERO STORAGE OF FROZEN FOOD

Reaches temperatures of 15° to 25° below zero for food freezing and quantity frozen storage. Exclusive features developed by Philco. Models for any home, 2½ cu. ft. capacity up.

# Refrigeration Dealers Find Advantages In Outlying Store Locations

## Broili-Parks Buys Site For Sacramento Store

SACRAMENTO, Calif.—The Broili-Parks Co., new local distributor of cooling systems, heating appliances, radios, and household appliances, made public the purchase of a lot at Nineteenth and W Sts. on which will be constructed a $37,000 building when materials become available.

Partners in the distributorship are George M. Parks, former salesman for the James S. Remick Co., who will serve as manager of the company; J. C. Broili; and J. C. Broili, Jr. Temporary offices will be maintained by the firm in the Forum building until its new quarters are ready for occupancy.

## Marshall Field Expands Evanston Facilities

CHICAGO—Marshall Field & Co. is expanding its Evanston store to make more room for merchandising of refrigerators and other electrical appliances. The expanded section is located beneath a parking ramp for customers' cars.

The electrical appliance sales will be moved from the fifth floor of the Evanston building to the new structure, including electric refrigerators, washing machines, and radios.

## Joslin Dry Goods Co. Opens Store In Denver Suburb 'To Save Customers 20 Miles Of Driving'

DENVER—Following a policy of "making it easy for appliance buyers to shop," Joslin Dry Goods Co., Denver, recently opened a new branch appliance store in Englewood, South Denver suburb three miles south of the city.

To operate as an extended arm of the main store appliance department, the new store will carry a complete line of radios, refrigerators, washing machines, and ranges. In addition a special department will stock home freezer units much in demand in such outlying residential districts, on which the store plans to make an intensive drive in 1946.

"We'll also display 10 lines of small electrical appliances and household furniture," Harvey E. Widick, who will manage the new store, explained, "on the theory that extending our appliance department into Englewood in this way will save customers 20 miles of driving and offer them the same facilities as the main store." Two or more outside salesmen calling on ranchers, truck gardeners, and country estate dwellers will be on the store's staff, following up leads coming from either the main store, or from Englewood customers. Warranty maintenance on all lines sold will be funished from the Joslin service shop in downtown Denver.

Store dimensions are 50 x 180 ft., with the building divided into separate departments for each major appliance line, a furniture section, and a home freezer section. There will be a credit office and a closing office equipped with telephones for salesmen.

## Associated Distributor Handles Line In Georgia

ATLANTA—Associated Distributing Co., new division of American Associated Co., 308 Ivy St., this city, has been appointed Georgia distributor for a number of refrigeration and other electrical home appliances, according to announcement by Samuel M. Aiola, vice president and general manager.

Products which the firm will distribute exclusively throughout Georgia were listed as including Freeze-All farm and home freezers, General radios and Du Mont Telesets. The concern also has been named a distributor for Velvetone radios, Hamilton Beach vacuum cleaners and food mixers, Sampson electrical home appliances, and Victron fans and portable ironers.

Besides Mr. Aiola, who has had years of experience in the home appliance field, other officers of the company include Armand May, president, and C. M. Brown, secretary and treasurer.

## When You Move Out, Big Showrooms Are Possible

**When John Saums, dealer in refrigeration and appliances since 1921, recently made his fifth expansion move, he put up his own building on a main highway route outside of Flemington, N. J. This enabled him to build a larger display room, and provide parking space for his customers.**

## Saums, In Expansion Move, Takes Own Building on Highway 30, Flemington, N. J.

FLEMINGTON, N. J.—In the fifth expansion move since he established his business back in 1921, John H. Saums, veteran dealer in appliances, Brunner commercial refrigeration, air conditioning, and farm machinery, is now located in his own building on Route 30, a main highway near here.

The Saums company had been located in the heart of Flemington since 1933, but moved out of town to obtain more space for its various operations and also to provide adequate parking space for customers and employes.

The new building is 100 ft. wide and 200 ft. deep. Front section of the building is devoted to showroom and counter space, large windows at the front and sides permitting extensive displays. Display area totals 6,000 sq. ft.

In the middle section of the building, space and facilities are devoted to storage of stock, while the rear section of the building houses a large machine shop, which during the war turned out products for the Navy.

Mr. Saums started in business as a farm boy in 1921 hatching and selling baby chicks to his neighbors. As the business grew over a 10-year period he expanded his operations to include the sale of poultry equipment. He gradually abandoned the hatching business in favor of the equipment lines and also branched out into the refrigerator and milk cooler business.

Then, in 1933, he took on lines of appliances and radios, setting up shop in a small Flemington store which proved inadequate within two years. Mr. Saums next relocated his dealership in a larger store, and was forced to expand again in 1937 by taking over space in an adjoining store.

When the Saums company moved into its latest location the local newspaper published a special four-page section picturing the building and describing its features.

Mr. Saums' wife Katherine is an active partner in the business, serving as office manager for the firm.

## Edward Donovan Joins Ross Roy Agency

DETROIT—Edward Donovan, former member of the Frigidaire advertising department, has joined the copy staff of Ross Roy, Inc., Detroit agency. While in Dayton with Frigidaire, Mr. Donovan served as specialist on freezers and electric ranges.

Actual THERMOBANK Installation in Locker Storage Plant of 500 Locker Capacity. The contracting firm was the Refrigeration Corporation of America, 241 W. 64th Street, New York, N. Y.

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# New Prices Set by OPA

## Price on Westinghouse 'Laundromat' Includes 'Home Instruction Course on Operation'

MANSFIELD, Ohio—A retail ceiling price of $203.95 has been set by OPA on the Laundromat automatic washing machine manufactured by Westinghouse Electric Corp., with the provision that this price includes an instruction course given in the purchaser's home by experts furnished by the dealer.

Established by Order 35, MPR 86, the ceiling price also includes delivery and installation. The order permits a dealer to add $5 to this ceiling if, at the request of the purchaser, the machine is sold with the additional five-year warranty on the automatic transmission.

This warranty, the order states, is "a guarantee to the original purchaser to replace the automatic transmission free of charge at any time up to and including Dec. 31 of the fifth year after year of manufacture, if it is proved to the satisfaction of the manufacturer to be inoperative due to defects in factory workmanship or material."

Installation is defined by the order as meaning "connection of the Laundromat to electric and plumbing facilities to be provided by the consumer so that the washing machine is ready for use." OPA further ruled that installation includes "a home instruction course on washability and Laundromat operation to be given in the consumer's home by expert demonstrators and instructors provided by the dealer."

For sales by distributors to dealers, the ceiling prices, f.o.b. each seller's warehouse, are as follows:

| Quantities | Without 5-year warranty on the automatic transmission Each | With 5-year warranty on the automatic transmission Each |
|---|---|---|
| 1 or 2 units | $118.98 | $123.98 |
| 3 to 5 units | 116.13 | 121.13 |
| 6 or more units | 113.23 | 118.23 |

All ceiling prices include a one-year warranty that the Laundromat and all parts thereof are free from defects in material or workmanship under normal use and service. The prices are subject to each seller's customary terms, discounts, allowances, and other price differentials in effect on sales for similar articles.

## Pressed Steel Car Co.'s Standard Range Model

CHICAGO—Approval of maximum prices for the Standard Model S-100 electric range manufactured by Pressed Steel Car Co., Inc., has been granted by OPA in Order 243, MPR 64.

Prices for sales by retail dealers to ultimate consumers are as follows:

| Model | Zone 1 Each | Zone 2 Each | Zone 3 Each | Zone 4 Each |
|---|---|---|---|---|
| S-100 Electric range with steel oven door | $173.25 | $176.95 | $180.75 | $184.50 |
| S-100 Electric range with glass oven door | 178.00 | 181.70 | 185.50 | 189.25 |

According to the order, these retail prices include the Federal excise tax, a one-year warranty, delivery, a range cord set, and installation to electric facilities.

For sales by the manufacturer to wholesale distributors, the maximum prices are:

| Model | Each |
|---|---|
| S-100 Electric range with steel oven door | $82.50 |
| S-100 Electric range with glass oven door | 84.75 |

These prices, f.o.b. the factory, include the range cord set and are subject to terms of 1%—10 days, net—30 days.

Following are the maximum prices for sales by wholesale distributors to retail dealers, including the Federal excise tax and the "pigtail":

* * *

| Article | Quantity | Model | Zone 1 Each | Zone 2 Each | Zone 3 Each | Zone 4 Each |
|---|---|---|---|---|---|---|
| Electric range with steel oven door | 1 to 4 | S-100 | $111.38 | $113.72 | $116.06 | $118.41 |
| | 5 or more | S-100 | 107.25 | 109.50 | 111.75 | 114.00 |
| Electric range with glass oven door | 1 to 4 | S-100 | 114.44 | 116.78 | 119.12 | 121.47 |
| | 5 or more | S-100 | 110.19 | 112.44 | 114.69 | 116.94 |

These prices are f.o.b. the wholesale distributor's city.

## Private Brand Washers For Western Auto Supply

KANSAS CITY, Mo.—OPA has approved the following ceiling prices for retail sales of three models of private brand washing machines sold by Western Auto Supply Co.

| Model | Each |
|---|---|
| 117C | $ 79.95 |
| 117CP | 84.95 |
| 117CG | 104.95 |

These ceilings are authorized by Order 36, MPR 86.

## Nineteen Hundred Corp.'s Wringer-Type Washer

ST. JOSEPH, Mich.—OPA has recently approved the following maximum prices for Nineteen Hundred Corp.'s Model No. 51230 Whirlpool wringer-type washing machine on sales by distributors to dealers:

| Quantity | Zone 1 Each | Zone 2 Each | Zone 3 Each | Zone 4 Each |
|---|---|---|---|---|
| Carload lots | $50.35 | $52.20 | $52.85 | $54.75 |
| Less than carload lots | 52.00 | 53.95 | 54.60 | 56.55 |

These prices were established by Order 34, MPR 86.

## Tappan Stove Co. Ranges

MANSFIELD, Ohio—Maximum retail prices for eight models of gas ranges manufactured by Tappan Stove Co., as recently established by OPA Order 245, MPR 64, range from $133 to $205.25.

Following are the ceiling prices for sales to ultimate consumers by retail dealers:

| Model | Zone 1 Each | Zone 2 Each | Zone 3 Each | Zone 4 Each |
|---|---|---|---|---|
| CPGVD-557 | $183.00 | $185.95 | $189.00 | $203.25 |
| CPGV-557 | 154.50 | 157.50 | 160.25 | 173.25 |
| PGVD-57 | 172.75 | 175.95 | 178.75 | 192.95 |
| GVD-57 | 172.00 | 174.95 | 178.00 | 191.95 |
| PGV-57 | 144.50 | 147.50 | 150.25 | 162.50 |
| GV-57 | 143.50 | 146.50 | 149.00 | 161.25 |
| PG-57 | 134.00 | 136.95 | 139.75 | 150.95 |
| G-57 | 133.00 | 135.95 | 138.75 | 149.95 |

| Model | Zone 4A Each | Zone 5 Each | Zone 5A Each |
|---|---|---|---|
| CPGVD-557 | $191.50 | $205.25 | $194.25 |
| CPGV-557 | 162.75 | 175.25 | 165.00 |
| PGVD-57 | 181.50 | 194.95 | 184.00 |
| GVD-57 | 180.50 | 193.95 | 183.25 |
| PGV-57 | 152.50 | 164.50 | 155.00 |
| GV-57 | 151.75 | 163.25 | 154.00 |
| PG-57 | 142.25 | 152.95 | 144.50 |
| G-57 | 141.50 | 151.95 | 143.50 |

These prices include delivery and installation, but the order permits the dealer to deduct $6 from the above figures if he does not provide installation. The Federal excise tax is also included, but not any state or local taxes.

The order lists the following prices, including the Federal excise tax and f.o.b. the wholesale distributor's city, for sales by wholesale distributors to retail dealers:

| Model | Zone 4 Each | Zone 5 Each |
|---|---|---|
| CPGVD-557 | $126.63 | $127.88 |
| CPGV-557 | 107.35 | 108.60 |
| PGVD-57 | 120.01 | 121.26 |
| GVD-57 | 119.36 | 120.61 |
| PGV-57 | 100.43 | 101.68 |
| GV-57 | 99.63 | 100.88 |
| PG-57 | 93.02 | 94.27 |
| G-57 | 92.38 | 93.63 |

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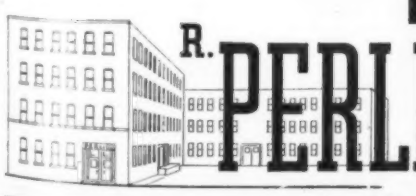

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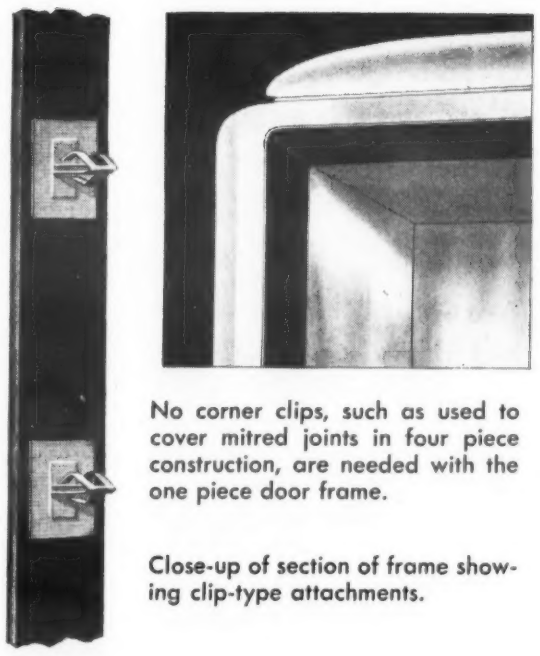



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# *Refrigeration Engineers Must Study Food Technology, and Perfect Preservation of Foods Prior To Freezing, Declares Diehl*

NEW YORK CITY—Quick freezing can't produce quality in foodstuffs, and it is up to refrigeration engineers to join with food technologists to learn more about selecting the right varieties of foods for freezing, and to determine the best means of preserving quality in foodstuffs prior to freezing.

That was the advice given to members of the American Society of Refrigerating Engineers at their recent annual meeting, by Dr. H. C. Diehl, director and secretary, The Refrigeration Research Foundation, Inc.

"A method of food preservation which seeks to retain the inherent fresh characteristics of fruits and vegetables must begin with raw materials possessing the best quality that can be obtained within economic limits," said Dr. Diehl.

"We come then to an axiom, briefly stated: 'No frozen food can be better in quality than the raw material of its origin.'"

Years ago it was suggested that field icing or precooling of vegetables intended for canning would pay dividends, said the speaker. These benefits would not only be in higher quality of finished product but in better utilization of the raw foodstuff, less culling out and wastage.

Emphasis on this point was not again popular until the freezing preservation of foods made it seem essential to the acceptability of certain frozen vegetables. Now icing or field cooling of perishables is quite commonly practiced, although much remains to be done to develop the engineering basis for doing the job efficiently and economically.

It is a fruitful field for the refrigeration engineer and the practical research worker who studies processed foods. When the benefits of quick reduction of temperature after vining in peas intended for freezing was first suggested, the findings were criticized tartly by some on the grounds that the investigators were making it easy to delay the prompt freezing of peas.

This criticism took place despite the fact that the report emphasized definitely that undue delays were not favored but that, as everyone knows, time was required to bring produce from the field to the plant under commercial conditions and that quick temperature reduction would make the raw material stand up more satisfactorily.

Perhaps the novelty of the suggestion in the light of customary field handling at that time, despite the importance of the principles involved, made the right understanding of the suggestion difficult for some.

### *Development of Engineers*

Due to the fact that inventors and engineers rather than biologists initiated the development of the quick-freezing process, at least insofar as the public was concerned, most people, scientist as well as layman, ascribed disproportionate importance to the efficacy of quick freezing, even assuming that commercial quick freezing indeed always closely approximated theoretical or experimental quick freezing, Dr. Diehl believes.

Despite the fact that in time the major importance of raw material quality in production of quick-frozen foods became evident, as is had to, since essential facts are not permantly overlooked in any successful endeavor, some people today still regard quick freezing by whatever procedure as a process which can solve everything and guarantee quality.

It must be stressed to the refrigeration engineer that, in frozen food developments as well as those dealing with perishables held at reduced temperatures above freezing, the biological considerations are often paramount in establishing correct engineering design or operational practice, said the speaker.

"We must recognize that the engineer and biologist do not speak exactly the same professional language. Therefore, some deliberate effort must be made on both sides to hear through, sympathetically and patiently, the reasoning and understanding of the two viewpoints.

"This comprehending liaison is much needed in the development of the science and art of freezing preservation not only in the phase with which this discussion is concerned but also with respect to the imperfectly understood phenomenon of ice formation in plant and animal tissues."

It is recognized that the reputable refrigerating engineer considers the variables, including fat and water-insoluble portions of foods, in his thermal calculations.

### *Certain Data Obtainable*

Some feel that these variables cannot ever be fixed within useful degrees of accuracy, that the undetermined thermal characteristics of various refrigerated foods having varied physical and chemical characteristics during the life of the product, prior to and during processing, defy capture and enumeration, and that as a result nothing profitable can be expected from investigation.

While there is a measure of truth in this and a warning to evaluate and report such data correctly, when found, it does seem possible to establish ranges of constituent composition and relate thereto thermal data, empirically determined, to the end that calculations will be more nearly accurate and our industrial plants as economical and efficient as possible.

The job of successfully producing frozen foods having the quality and nutritive properties essential to sustained acceptance by the consumer begins with the selection of the right varieties of the fruit or vegetable.

Does that concern the refrigeration engineer? It may because any special character, condition, or defect inherent in the product may require modifications of procedure somewhere on the flow sheet. The engineer must know what to look for, how to evaluate its importance, what to do about it in designing a complete freezing plant or in operating one.

To a limited extent, investigators in different sections of the country have studied the suitability of fruit and vegetable varieties for freezing. The investigations several years ago of Dr. J. S. Caldwell and his group in the U. S. Bureau of Plant Industry and of the U. S. Frozen Pack Laboratory of the U. S. Bureau of Chemistry and Soils in cooperation with the State Experiment Stations of Oregon and Washington, may be cited as examples. Climate, soil, and latitude of different areas may cause a variety to behave differently in several regions.

With but few exceptions, the limiting factors in varietal selection deal with the ability of the variety to yield satisfactorily and resist disease, harvest economically and well, and stand up under the special requirements of the freezing preservation.

### *Why Varieties Are Important*

The degree to which a varietal character may affect the sequence in the flow sheet is illustrated by freestone peaches. Discoloration of peaches is a major problem requiring such procedures as chilling of sirup, blanching in steam or in sirup, sulfuring and special packing methods.

There is at least one freestone peach variety, Sunbeam, the fruit of which does not discolor readily upon slicing. This variety would be ideal for freezing, but it does not have the quality or production record desired. Hence, there is a job for the geneticist to reproduce the non-browning character in new selections which do have the fine freezing character of J. H. Hale, Rio Oso Gem, or Elberta.

Green, seed coated garden type peas with green cotyledons are best suited for freezing. Garden peas were bred with long stem internodes to be harvested by hand in successive pickings.

But economic considerations require that peas for freezing be harvested by mowing and vining as are canning peas. The latter plants have short stem internodes and mature their seed fruit at about the same time.

When garden pea vines are mowed at one time, the spread of maturity in the peas often ranges from immature to overmature, and the choice of harvesting time is a compromise between several considerations.

Hence, until garden peas with the desired canning pea characteristics are available, a number of technological problems arise which would otherwise be non-existent.

For freezing preservation, some comprehensive investigations of varietal behavior have been made and are in progress, especially in the Pacific northwest and in the mid-Atlantic states. Some have been reported in scientific or trade journals and so are useful not only for the intrinsic information but

*(Concluded on next page)*


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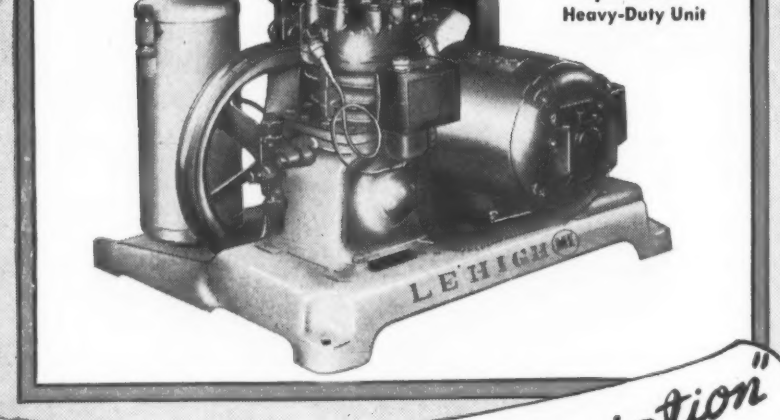


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# Chilling To Below 40° F. Is All-Important While Produce is Held Prior to Freezing

*(Concluded from preceding page)*

also as guides for future varietal testing.

Anyone who plans to lay out or operate a fruit and vegetable freezing plant does himself a service by studying carefully the varietal reports that apply to freezing preservation and by encouraging the testing of varieties by federal, state, and private experts in the region or locality in which the plant is to be located.

The production of the fruit or vegetable in relation to its growing environment poses many engineering as well as technological questions. Perhaps at this point the interest of the refrigeration engineer is least affected directly.

It is well to keep on stressing, though, that any raw material problems inevitably affect many or all parts of the freezing operation, even though the degree of that influence may not be clearly percepible without analysis.

It is known, for instance, that the long vine characteristic of the Tall Alderman pea (designed for trellis training in rows) created a problem of mowing and vining when grown broadcast as did certain lima bean characteristics.

For instance, the reluctance of the otherwise very desirable Fordhook when grown in certain areas to open its pods in the viner has caused considerable trouble. Prompt chilling of the pods after harvest might be thought of not only as a protection of quality but in order to make the pod tissue snap more easily.

Whether that solved the problem or not, the problem is one of culture and harvesting, as well as of varietal origin, and if chilling were found to be useful, then the refrigeration engineer obviously is at once involved.

### *Where the Engineer Comes In*

While the refrigeration engineer may not be directly concerned in harvesting, unless he operates a freezing plant or has to provide freezing facilities adequate to the tonnage to be handled, he has an indirect interest. Crops do not mature at the same time or in the same way each year. There are vintage years insofar as crop quality as well as abundance are concerned.

If one designs a plant in a region such as the San Joaquin valley in California where summer temperatures are very high and with high water vapor pressure deficits in the air, then the provision of adequate cooler rooms for precooling or holding facilities is imperative.

Under those conditions, no freezing operation could afford to provide enough plant equipment to handle the peak load days. And yet nature may choose during some season to mature a crop practially all at once.

Large waste and much confusion may ensue unless provision is made for bringing in the crops at the desired state of maturity and then retarding the physiological processes of the fruit or vegetable by chilling to temperatures at least below 40° F.

At this point, the heat of respiration as well as the field heat becomes a matter of very vital interest rather than of optional academic concern to the refrigeration engineer who is designing, constructing, or operating chilling facilities.

Consider that the curve of the heat evolved is parabolic following in general the Van't Hoff law, whereby at 100° F. the number of B.t.u. given off per ton per 24 hours by a highly perishable vegetable may be in the ratio of 10 times that produced at 40° or 32° in a conservative generalization.

Haller, Harding, Lutz, and Rose, for instance, report the following relationships in this respect approximately for strawberries: 32° F.—2730 to 3800; 40° F.—5130 to 6600; 60° F.—15,640 to 19,140; and 80° F.—37,220 to 46,440. And for peaches: 32° F.—850 to 1370; 40° F.—1440 to 2030; 60° F.—7260 to 9310; and 80° F.—17,930 to 22,460.

### *Some Work Has Been Done*

Considerable information on the removal of field and respiratory heat of perishable crops is at hand. Until recently relatively little of that information has been comprehensively applied to the handling of raw materials for processing. Yet fundamentally, the information is equally useful whether the crops are finally shipped as raw produce in refrigerator cars or are processed by freezing, canning, or dehydration.

The scientists in the U. S. Department of Agriculture under the direction of D. F. Fisher—Rose, Wright, Pentzer, Smith, Gerhardt, Ezell, Ryall, and others—have contributed significantly to a fund of knowledge of this sort, which merely requires exploitation in order to prove its value in the handling of produce intended for freezing.

The real effects of drastic handling of perishables are probably as yet not completely realized, said Dr. Diehl. Each bruise or bump that is avoided, each minute that the produce can be at or below 40° F. rather than at higher atmospheric temperatures, each degree of temperature reduction that can be achieved is one more point of asset in retaining high quality.

If a succession of impacts seems unavoidable during some essential harvesting or handling procedure, and we know then that respiratory activity and deterioration are stimulated to a greater or less degree depending on the commodity, immediate temperature reduction is the next practical step to be taken.

Whether this is done by crushed ice, chilled air, or chilled water (mechanical refrigeration or ice) will be determined by the nature of the product and environmental or time considerations. When we take one step to remedy a situation, we may discover that another problem has been created.

It should be pointed out that the effect of moisture as residual water or condensation on some raw products has been often feared unduly; that is, if the temperature is high, then microorganisms may do surface damage in a moist environment, but if the temperature is promptly lowered, as by good hydrocooling, little if any surface danger from water exists unless exposure is prolonged beyond practical limits.

### *Uses of Hydrocooling*

By hydrocooling in the field, the so-called viner juice, basteria, dust and other undesirable contaminants may be washed from the vegetable promptly in addition to achieving quick temperature reduction. That these surface contaminants often have undesirable effects on the raw material has been recognized for some time.

Each of the essential steps in handling raw materials so as to preserve original quality, when discovered by scientific investigations, must then find its practical application, said Dr. Diehl.

There is now no ideal field precooling equipment, there is no ideal field transport vehicle, insulated or possibly refrigerated to guard the precooled raw products against renewed temperature rise, and there is a need for many desirable modifications in harvesting, vining, cleaning, sorting, grading, washing, and chilling equipment to help retain the original quality of the produce.

The magnitude of the whole job will be sensed when it is realized that we have considered only fruits and vegetables. There remain seafoods, meats, and poultry products, all of which present unique problems of quality retention.

But in each the emphasis remains the same: no frozen food really has better quality than the raw material from which it is made.

To clearly understand that, the refrigeration engineer, the food chemist and the food technologist

(1) must become more accustomed to employing horticultural science and plant physiology to help them understand the nature of the raw product they propose to freeze, and

(2) must constantly remind themselves that fruits and vegetables are living matter, sensitive to their environment, constantly aging as soon as harvested, and so increasingly subject to deterioration, injury, and disease.

To arrest that natural course, because man requires his food to possess certain characteristics of nutritive value and palatability, the refrigeration engineer and the food technologist provide reduced temperatures for its temporary preservation and finally below-freezing temperatures so that as nearly as possible, with the help of all accessory aids, the living matter will have permanent stability and usefulness as a good and nutritious food.

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# What's New

## Sealer Compound Claimed To Aid Defrosting

NEW YORK CITY—Stanco, Inc. here, has developed the product "Thors," a double-duty anti-frost compound for use on freezer doors and the refrigeration coils of cold storage plants and freezer rooms.

It is claimed that "Thors" prevents the sticking of freezer doors and acts as a sealer on contact surfaces to prevent leakage. It is also said to function in aiding in the removal of ice and frost on refrigeration coils.

Made of petroleum base, the product has a light color and soft consistency. It is applied by brush or swab. The product, being applied in a thin film, is claimed to have an insignificant effect on heat conductivity.

In the application for freezer doors, the contact surfaces are freed of frost, rust, scale, and water before "Thors" is applied by brush or swab. One to two pounds of the product usually suffices for treating the contact surfaces of a door in winter and summer, it is said. The frost formation is brushed off as required, about once a week. The defrosting may be repeated up to six times before renewal of coating becomes necessary.

Stanco claims that "Thors" will cut the defrosting time for refrigerator rooms with single coils by more than one-half. The product is applied to frost-free pipe at the rate of about 1.4 pounds per 100 linear feet of 2-inch diameter pipe, leaving a thickness of .005 inch. Forty pounds will treat 2,900 feet of pipe.

Smooth pipe is coated by gloved hand. Double and triple bank systems do not lend themselves to this treatment. Tapping with wood or mallet generally removes the ice and frost formation from pipe treated with this compound.

"Thors" is now available in 35-pound pails and in 100-pound kegs.

## Variable Speed Magnetic Fan Drive Introduced

MINNEAPOLIS — Speed control for boiler draft fans, centrifugal pumps, blowers, and compressors is provided by a new magnetic adjustable-speed drive introduced by Electric Machinery Mfg. Co. here.

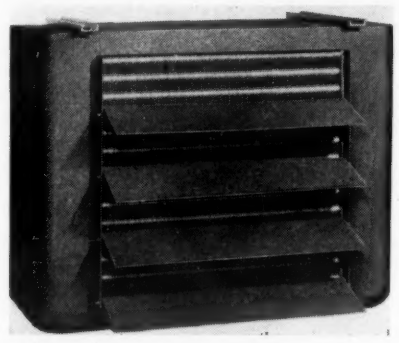
Consisting of two operating parts, a rotating ring, and a rotating magnet, the drive is described by the company as "a compact, self-contained, electro-magnetic torque transmitter used in combination with a constant-speed a.c. motor and an electronic controller to provide split-revolution speed control."

Electric Machinery said the controller is built in ratings approximately 25 hp. and larger at 1,800 to 600 r.p.m. and is available in several forms.

Power savings are effected, the firm claimed, by operation of boiler draft fans at reduced speeds for partial output, eliminating the need for damper or inlet vane control.

The drive can be used in combination with synchronous motors to provide power factor correction, it was stated.

## Rempe Blower Designed For Low Temperatures

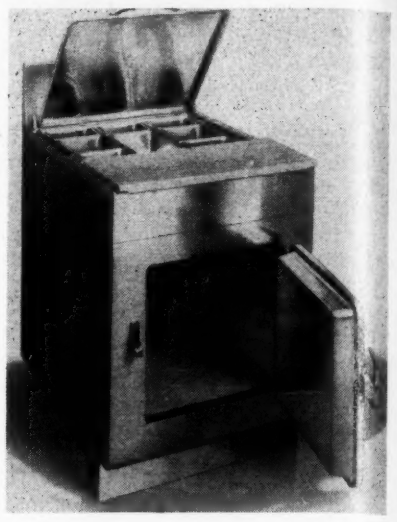


CHICAGO — A new line of overhead blowers designed for low temperature cooling and built for use with all types of refrigerant, including brine and prestone, has been announced by Rempe Co. here.

In the Rempe blower, provision has been made for different velocities of air speed to furnish the proper volume of air for various and specific cooling jobs, company officials claim. The coils are so designed, it is said, that the outlet velocities of the refrigerants are well within safe limits. Tubes and bends are of full area, with no obstructions.

Louvers are adjustable to permit a controlled flow of air for proper and uniform distribution, the company claims. All blowers are housed in a modern steel bonderized case of gray wrinkle-baked enamel finish.

## Liquid Carbonic Uses Stainless Steel Coils



**A feature of Liquid Carbonic's 1946 soda fountain line is this 2-cu. ft. cold food unit.**

* * *

CHICAGO—Stainless steel water cooling coils have replaced the block-tin type as one of the design and engineering improvements said to be incorporated in Liquid Carbonic Corp.'s 1946 soda fountain line as the result of interviews with more than 4,000 fountain operators.

Low temperature syrup refrigeration and a new cold food unit (salad table) are other features of the Liquid line of fountain-luncheonette equipment.

The Liquid fountains, fountain units, and bobtails are equipped with reserve water chilling through the stainless steel coils that were designed to eliminate service problems caused by the block-tin type, according to W. D. Jordan, vice president of the fountain-cabinet division.

A higher working surface of 33 inches also is announced as a 1946 improvement. Extensive tests have shown that this height is least fatiguing to the operator, the corporation said.

Fifty per cent greater capacity with no increase in floor area occupied is claimed for Liquid's new steam table, the Hold-Mor. The salad table is described as providing 33% additional service capacity.

Fountain and luncheonette units were designed to fit together to assure a continuous, crevice-free surface and facilitate cleaning.

One of the Liquid fountain line is the 7-ft. Coldsleeve model having an ice-cream capacity of 40 gallons and four-sided refrigeration. The corporation announced that units are available for wall-type layouts and narrow models for backbar installation.

## Olde Dominion Mfg. Co. Produces Freezer Line

ROANOKE, Va.—Olde Dominion Mfg. Co. has been established here by Carl Windel and is engaged in the manufacture of farm and home freezers.

*(Concluded on next page)*

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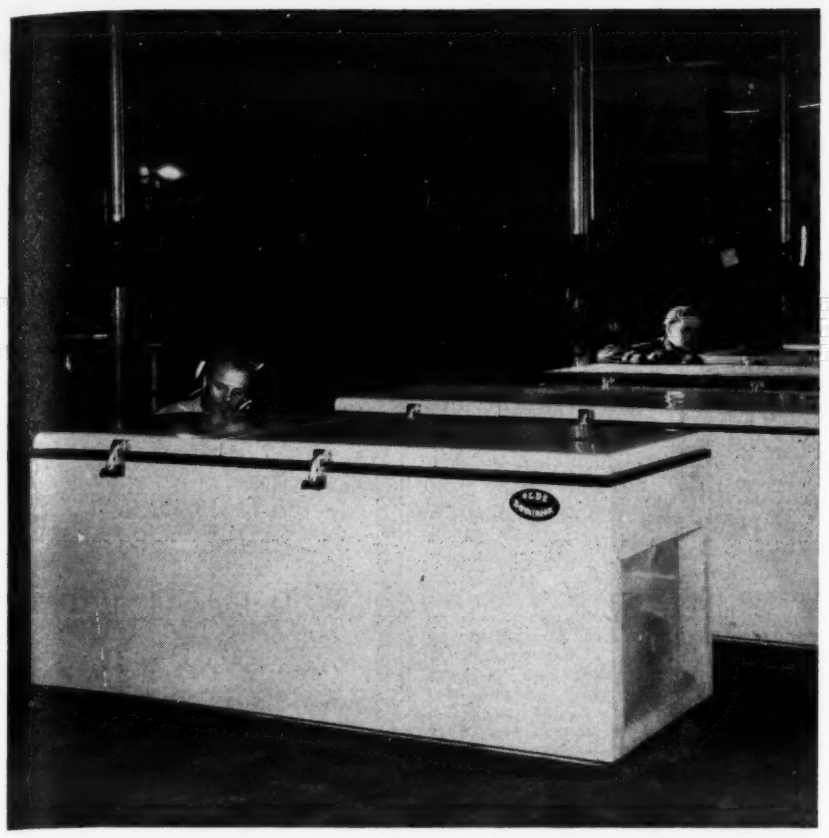
## New Freezer Line Gets Finishing Touches



These 15-cu. ft. freezers are produced by the Olde Dominion Mfg. Co. of Roanoke, Va., organized by Carl Windel, a veteran commercial refrigeration man who served with OPA during the war years.

## Olde Dominion--

*(Concluded from preceding page)*

The company later on plans to produce milk coolers, beverage coolers, and truck bodies.

Mr. Windel was formerly with the Office of Price Administration, handling pricing problems on commercial refrigeration and air conditioning products. Before that he was actively engaged in the sale of commercial refrigeration products, having been associated at different times with Kelvinator, Copeland, and Frigidaire.

The freezer now being manufactured is a top opening model with 15-cu. ft. capacity, powered by a ⅓-hp. heavy duty condensing unit. Plate type evaporators are used. Construction features include easy opening lids, and a special enamel finish.

## Jacobs Washer Uses Cams for its Cycles

DETROIT — Controlled mechanically by cams rather than electrically by solenoids, the "Launderall" automatic washer to be introduced by the F. L. Jacobs Co. here performs four cycles in the washing process, the company has announced.

The four cycles are (1) a wash cycle followed by a short spin, (2) a deep rinse in clear, lukewarm water followed by a short spin, (3) a second deep rinse, and (4) a final spin at 375 r.p.m. after which the unit shuts off automatically.

The washing cylinder revolves in one direction 10 to 12 times and then reverses direction, revolving an equal number of times, the company says. This prevents clothes from getting tangled in the cylinder and permits them to roll over and through the water, it is claimed.

Rounded baffles in the washing cylinder further help this rolling action, and the whole operation is claimed to keep the clothes evenly distributed and make for a smoother running mechanism. For installation the washer must be bolted to the floor.

At least 10 pounds of clothes can be accommodated, and the Jacobs company claims that drying action leaves but one pound of moisture in each pound of clothes. An automatic latch holds the door shut when the cylinder is operating and stops the cylinder when the door is opened.

Other features claimed for the unit are automatic water temperature controls, automatic temperature control dial, a starter control dial, a heat-sealing, water-tight gasket around the opening, a glass inspection window, and a water pump.

All parts are claimed to be readily accessible for service behind a removable front panel.

## Ref. Economics Bulletins Describe Cooling Line

CANTON, Ohio—Specifications and descriptions of the principal air conditioning and refrigeration products manufactured by Refrigeration Economics Co., Inc., are contained in four bulletins now being distributed.

Bulletin E contains data on air conditioning units, evaporative condensers, and banana room conditioners. Refrigerating and air conditioning equipment is described in Bulletin F. Bulletin G is devoted to evaporative condensers, and Bulletin H 42 to oil and liquid cooling units.

Special assignments are handled by the company, and in Bulletin E is a picture of a completed installation designed to maintain any temperature from 70° to 90° and any humidity from 50% to 90%. Another page lists heat loss factors and other data for estimating an air conditioning plant. Horizontal and vertical air conditioners from three to 20 tons are included in the catalog, with the notation that heating coils for year-around conditioning may be added to the horizontal fan type.

Various types of coils, forced convector units, evaporative condensers, and brine spray cooling units are described in Bulletin F.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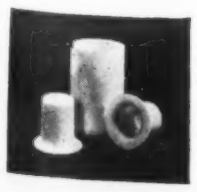

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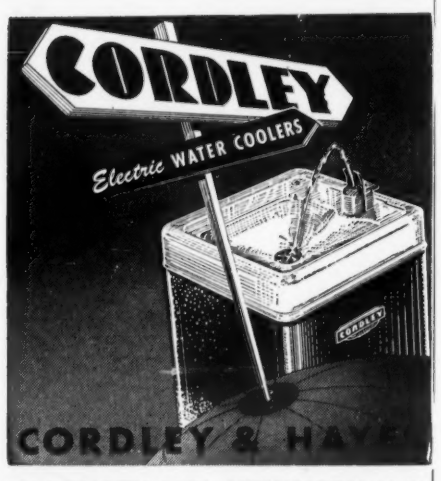

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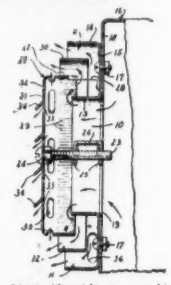
# PATENTS

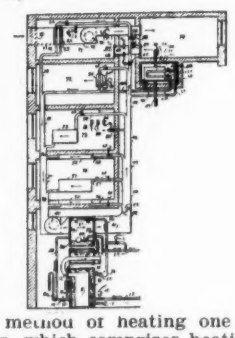
## Week of Jan. 8, 1946

**2,392,393. AIR DISTRIBUTION OUTLET. Walter W. Kennedy, Rockford, Ill., assignor to Barber-Colman Co., Rockford, Ill., a corporation of Illinois. Application May 28, 1942, Serial No. 444,789. 13 Claims. (Cl. 98—40.)**



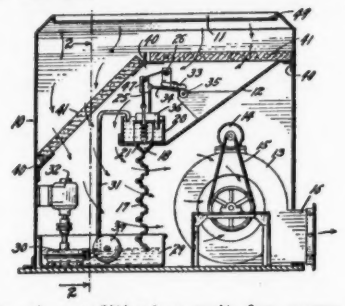
1. An air distribution unit having, in combination, two concentric tubes, the inner one of which constitutes a forced air inlet, a cup opening toward said inlet and coacting with the outer tube to define an axially facing outlet, a wall extending across the inner ends of said tubes and spaced from the lip of said cup so as to define an air passage extending radially across said lip, and a ring disposed between said cup and outer tube and dividing said outlet into concentric passages, the side of said cup and said outer tube being apertured for the discharge of air in radially directed jets and the bottom of the cup being apertured to direct a plurality of air jets forwardly from the unit.

**2,392,553. MOIST AIR HEATING AND COOLING SYSTEM. Leonard E. Rollins, Minneapolis, Minn. Application May 5, 1943, Serial No. 485,961. 13 Claims. (Cl. 257—3.)**



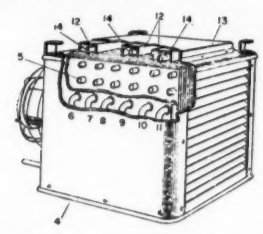
1. The method of heating one or more enclosures, which comprises heating water to a temperature less than that of boiling, circulating the heated water in direct contact with a flow of air and circulating the heated air in indirect contact with the said enclosures.

**2,392,601. AIR CONDITIONING UNIT FOR WARM AIR FURNACES. John E. Long, Boulder, Colo. Application May 22, 1944, Serial No. 536,685. 1 Claim. (Cl. 183—19.)**



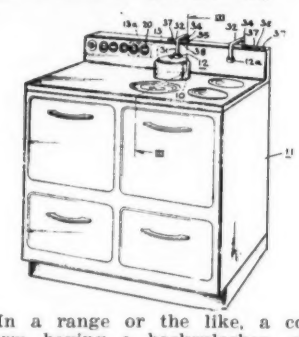
An air conditioning unit for warm air furnaces comprising: a housing having an entirely open top; two oppositely positioned end walls in said housing; a partition plate extending inwardly and downwardly into said housing from the first end wall and terminating in spaced relation to the second end wall; a V-shaped trough in the lower extremity of said plate extending transversely of said housing and having perforations in its bottom; a humidifying screen suspended from said trough below said perforations and extending across and to the bottom of said housing; a water reservoir supported by said partition plate over said trough; vertically opening valves in the bottom of said reservoir; means for opening said valves from the exterior of said reservoir: a feed tank in said housing below said screen; a motor-driven pump elevating water from said feed tank to said reservoir; a blower in said housing below said partition plate discharging through said first end wall and receiving its air through said screen; and filter means positioned in the path of the air between the open top of said housing and said humidifying screen.

**2,392,628. DEFROSTING ARRANGEMENT. Carlyle M. Ashley, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware. Application May 20, 1943, Serial No. 487,746. 8 Claims. (Cl. 62—1.)**



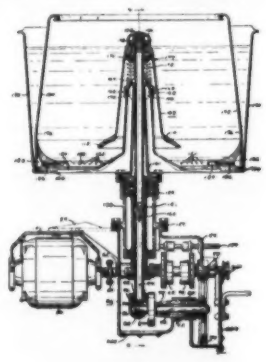
2. In combination a casing, a plurality of refrigerated coils positioned within said casing, a top member in the casing, a plurality of channels integral with the top member, coils within the channels, means for discharging water from said last mentioned coils upwardly against the channels, said channels having legs positioned above the coils in the casing in such manner that water discharged upwardly in the channels will flow from the legs downwardly upon the coils in the casing, and means for draining the coils in the channels.

**2,392,635. HEATING APPARATUS. Edward Bletz, Lexington, Ohio, assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application June 17, 1942, Serial No. 447,359. 2 Claims. (Cl. 219—37.)**



1. In a range or the like, a cooking platform having a backsplasher, electric heating means carried by said platform and adapted to heat a cooking vessel or the like placed thereon, a rigid tubular supporting device comprising a vertical part rotatively mounted in the backsplasher and vertically movable to raise the upper end thereof from the top of the backsplasher, a horizontal part extending from said upper end of the first part, and a second vertical part extending downwardly from the other end of the horizontal part, thermostatic means carried by the lower end of said second vertical part, said tubular device being adapted to position said thermostatic means in engagement with a vessel placed on said heating means, said backsplasher being formed to receive said thermostatic means upon rotating the tubular device to bring the same over the backsplasher and then lowering the same, and electrical conductors extending from said thermostatic means through said tubular supporting device and connected in an energizing circuit of said heating means.

**2,392,652. DOMESTIC APPLIANCE. John B. Dyer, Syracuse, N. Y., assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Oct. 5, 1942, Serial No. 460,753, which is a division of application Serial No. 269,594, April 24, 1939. Divided and this application June 16, 1943. Serial No. 491,033. 9 Claims. (Cl. 68—23.)**



1. A washing machine comprising a rotatable tub, a vertically reciprocable agitator in said tub; a motor; a transmission mechanism connecting said motor, tub and agitator and including a rotatable sleeve connected to said tub, a vertically reciprocable shaft connected to said agitator, mechanism to permit concurrent rotation of said agitator and tub and permit vertical reciprocation of said agitator independently of said tub, driving connections between said motor, sleeve and shaft including rotating mechanism to rotate said sleeve and reciprocating mechanism to reciprocate said shaft, means to prevent operation of said reciprocating mechanism while rendering effective said rotating mechanism and to apply a braking action to said rotating mechanism while rendering said reciprocating mechanism effective.

7. A transmission comprising a rotatable sleeve and a longitudinally reciprocable shaft coaxially disposed, a rotatable drive shaft, a spin collar slidably mounted on said drive shaft and drivingly connected to said rotatable sleeve, a reciprocation collar slidably mounted on said drive shaft and drivingly connected to said agitator shaft, clutch means selectively drivingly connecting said drive shaft to said spin collar and reciprocation collar, and brake means for one of said collars applicable while the other collar is connected to said drive shaft.

**2,392,689. REFRIGERATION APPARATUS. Walter Peglow, Mansfield, Ohio, assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Feb. 6, 1943, Serial No. 474,920. 6 Claims. (Cl. 16—80.)**

1. In a refrigerator cabinet having an access opening and a door for closing said opening, a hinge for connecting said door to said cabinet, said door being mov-

*(Concluded on next page)*

AMANA Commercial REFRIGERATION
MODERN
• DISPLAY CASES
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EXCELLENT OPPORTUNITY in charge of sales department of well established and recognized wholesale parts and accessories refrigeration wholesaler. A large volume business already established covering four Eastern States. Must be thoroughly familiar with refrigeration business and must have engineering background. State qualifications in full. Box 1531, Air Conditioning & Refrigeration News.

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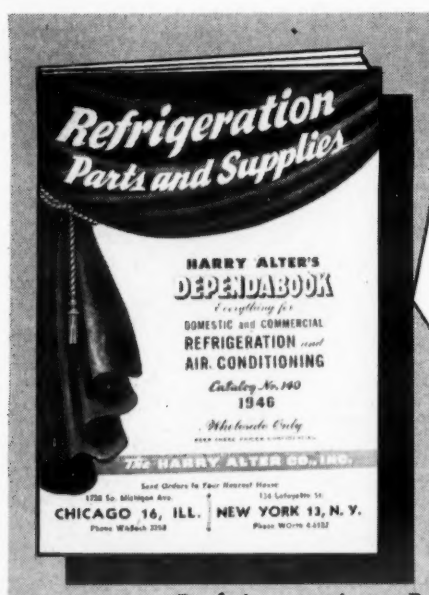

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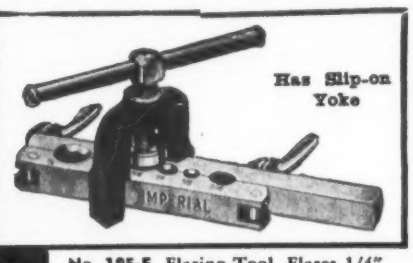

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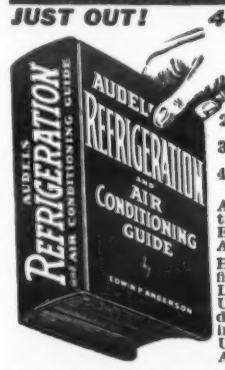

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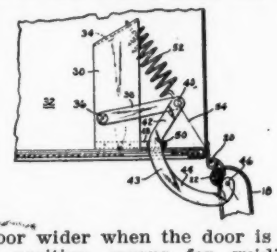
# Patents (Con't)

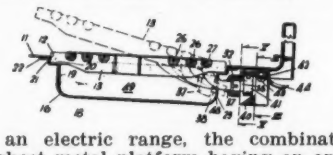
*(Concluded from preceding page)*

able into first and second open positions, a link pivoted at one end to said door at a point remote from the axis of said hinge and movable upon opening and closing of said door, a tension spring connected to the other end of said link in a manner to close said door when the same is in said first position and to open



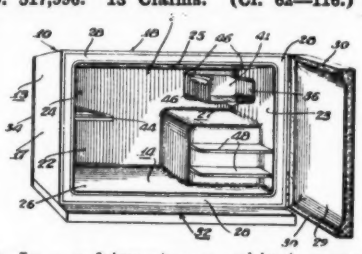
said door wider when the door is in said second position, means for guiding the movement of the other end of said link along a fixed path extending in a general direction toward the axis of the hinge of said door, said fixed path being at substantially right angles with said axis and a stop adapted to engage a portion of said link spaced from said other end, to limit the rotation of said link about said other end, thereby limiting the opening of said door.

**2,392,692. HEATING APPARATUS. George E. Price, Mansfield, Ohio, assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Feb. 17, 1942, Serial No. 431,212. 1 Claim. (Cl. 219—37.)**



In an electric range, the combination of a sheet metal platform having an opening therein, a sheet metal drip and reflector pan structure having a side wall, said pan structure being welded to said platform peripherally of said opening and depending from the platform in line with said opening, a vitreous enamel covering on said platform and said pan structure, said coating being applied to said platform and said pan structure as a unit after they have been attached together, said pan structure having an aperture in the side wall thereof, a heating element adapted to be supported over said pan structure for cooking on the platform and readily removable therefrom for cleaning of the same and the pan, said heating element including a terminal structure, said terminal structure being adapted to pass through said aperture in the side wall of the pan structure when said heating element is placed in its normal-use position over the pan structure for surface cooking on the platform and when it is removed for cleaning of the same and the pan, and contact means disposed exterior of said pan structure beneath said platform and engageable by said terminal structure for electrically connecting said heating element to a suitable source of power to heat said heating element to cooking temperature.

**2,392,727. REFRIGERATOR ASSEMBLY. Donald E. Dailey, Germantown, Pa., assignor to Philco Radio & Television Corp., Philadelphia, Pa., a corporation of Delaware. Application Jan. 12, 1944, Serial No. 517,996. 13 Claims. (Cl. 62—116.)**



1. In a refrigerator, a cabinet comprising an outer shell, an inner liner having a reentrant portion forming a recess, and a self-contained refrigerating unit assembled with the cabinet and including a motor-compressor housed within said recess and a support for said motor-compressor constituting also a base for said cabinet, and means for detachably securing the cabinet to said base.

## AVAILABLE FOR LICENSING OR SALE

Pat. 1,948,775. CONCEALED HINGE FOR REFRIGERATORS. Patented Feb. 27, 1934. Concealed flat leaf type hinge eliminates the necessity of cutting door flanges. May be applied to refrigerators, cabinets, etc. Group 35—84. Reg. No. 882.

Pat. 1,898,500. ENAMEL DECORATING PROCESS. Patented Feb. 21, 1933. Process of applying colors in a dry or powdered state which are later fused into enamel coating for ranges, refrigerators, etc. Applied by means of stencils or brushes. Group 33-74. Reg. No. 883.

Pat. 1,961,022. REFRIGERATOR CONSTRUCTION. Patented May 29, 1934. Door mounting is such that edges are flush with side of refrigerator. Hinges are concealed and cabinet presents a smooth exterior. Group 35—84. Reg. No. 884.

Pat. 2,150,300. RANGE AND REFRIGERATOR CONSTRUCTION. Patented Mar. 14, 1939. Fabrication of relatively light, yet strong, cabinets which eliminates the necessity of heavy metal frames by welding strips of sheet metal, bent to shape, to serve as covering for the finished cabinet. Insulating filler blocks are positioned prior to welding. Variations shown. Group 35—84. Reg. No. 885.

Des. 111,158. DESIGN FOR A COMBINATION REFRIGERATOR AND SERVING TABLE. Patented Sept. 6, 1938. Refrigerator of low height, positioned under serving table with splasher back, has recessed, enclosed auxiliary storage compartments. Group 35—84. Reg. No. 886.

The five patents listed above are owned by G. & J. Teller, 664 Subway Terminal Bldg., Los Angeles 13, Calif.

# Grant Price Increases For Oil Burners and Oil Burning Heaters

WASHINGTON, D. C. — Optional ceiling-price increases of 9% for domestic oil burners and of 12.5% for gas-fired and liquid petroleum-fired furnaces and unit heaters over Oct. 1, 1941, levels were recently granted manufacturers by OPA in two price adjustment amendments.

Consisting of two added sections to Order 48 under section 22 of MPR 591, the amendments permit the same increases for repair and service parts, and describe how resellers are to compute their price boosts.

The new sections also established industry profit factors to be used by manufacturers in filing applications for adjustments under section 1.2 (a) or (b) of Order 48. Producers of burners were given a profit factor of 6.5%, while the factor for furnace and heater manufacturers was set at 7.5%.

Price increases for sales of the burners are authorized by section 2.4, added to Order 48 by Amendment 3. The furnace and heater increases are allowed by Amendment 4, which adds section 2.5 to the order.

Only those products priced on the Oct. 1, 1941, basis come under the provisions of these sections. Specific authorization must be obtained from OPA to increase the price of other items.

A manufacturer may request this authorization by filing an application which will reflect the increases obtained for similar articles by other manufacturers using the new pricing methods. Such an application is to set forth the following information:

1. Full description of the item. Cuts or detailed sketches should be supplied.

2. Established maximum price for the item and the section and regulation under which the maximum price was established.

3. If possible, the name of competitors marketing a similar item for which they had Oct. 1, 1941, prices.

OPA said the amendments are not intended to reduce prices. In the event that prices figured according to the provisions of these sections are less than those now authorized, manufacturers are permitted to continue using current ceilings.

Resellers are directed to determine their maximum prices under the new regulations by adding the actual dollar-and-cents increases granted the manufacturers to their ceiling prices in effect on Jan. 13, 1946. Amendment 3 states that a seller will not be considered a "reseller" within the meaning of the section "when he uses the types of oil burners covered by this section on or in connection with the sale of another article (such as furnace, etc.) and his maximum price for the burner and the other article is established on the basis of a lump sum."

Domestic oil burners are defined in Amendment 3 as meaning "all types of burners using lighter than No. 5 oil as well as horizontal rotary and gun type burning No. 5 and No. 6 oils"

Amendment 4 describes gas-fired and liquefied petroleum-fired furnaces as meaning "any warm air furnace using gas or liquefied petroleum as fuel, not including portable space heaters." The term, unit heater, means "any unit heater using gas, oil, steam, or hot water as the fuel."

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FULL FLOODED
THE HUBBELL-YODER REFRIGERATION PLATE
• Every square inch of surface is prime heat pickup
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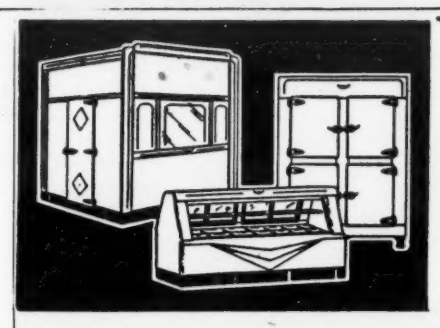
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ELKHART, INDIANA
VALVES AND FITTINGS SINCE 1904

## Contractors--

*(Concluded from Page 1, Column 2)*

*Class AA*—Individual firms, located within the jurisdiction of an affiliated local contractors association, who wish to join N.A.R.C. on a member-at-large basis. However, to qualify for member-at-large classification, these firms must also be members of their local associations.

*Class B*—This classification covers local contractor associations having 10 or more members qualifying for membership under N.A.R.C. standards, and allows these groups to be represented in the national organization in relation to their local membership strength.

The right to vote in national association affairs was set on the basis of one vote for each five members of a local association enrolled as a Class B member, and one vote for each individual firm holding Class A or Class AA membership.

It was decided to incorporate the association and develop a special emblem for use by member firms and organizations. Letters and telegrams received and read during the meeting indicated an interest on the part of refrigeration firms far beyond the actual number in attendance at the affair. Responses to inquiries sent by mail to several thousand contractor firms in all parts of the country are still being received, it was reported at the meeting, indicating that the new association fills a long-left industry need.

With the permanent organization framework settled, an intensive campaign for new members is being launched, and if the present nation-wide interest is sustained, membership will be in excess of 1,000 contractors by the time of the next N.A.R.C. meeting in Cleveland next October. Selection of additional regional directors, and of an executive vice president or secretary-manager, is now under consideration, and will be announced shortly.

In discussions during the two-day meeting, particular emphasis was placed on the type of contractors most desirable for membership in the association, and in the development of standards of business ethics and workmanship to keep the level of this phase of the industry at the highest plane. Cooperation with other associations in the industry also was pledged.

Particularly encouraging to those contractors whose efforts brought about formation of the new association were the large number of applications for Class AA memberships—those memberships covering individual firms already represented by local groups which are affiliated with N.A.R.C.

In the opinion of the directors, this indicates an active interest in the group's activities by these individual firms, and will strengthen in a large measure the work of the national organization.

Committees are already functioning to meet the immediate problems of the refrigeration contractor. One of the important committees has as its task the investigation of war surplus materials and their possible effect on the business operations of N.A.R.C. members.

## Electronics--

*(Concluded from Page 1, Column 3)*

ressed during the war for such processes as plating tin and treating steel, Dr. Thomas said sensational developments for home-owners are coming in this field.

"Such electronic heating," he said, "can be used for cooking. An electric cookstove could heat nothing about it except the food that lies between two vertical plates which set up the radio-frequency field.

"Such a cookstove could be installed in a refrigerator without disturbing the cold inside of the rest of the refrigerator. Food to be cooked could be left in the cooking unit and left cold until a switch starting the stove was thrown. Then, in a short time, the food could be removed from the refrigerator, cooked and hot."

## Noma--

*(Concluded from Page 1, Column 4)*

Freeze home and farm freezers and commercial frozen food cabinets for retail stores and institutions."

Refrigeration Corp. originated the idea for the Frozen Foods Centers, devoted exclusively to the sales of frozen foods, which opened in New York City last summer and which are now becoming popular across the nation.

As an added impetus to the growth of frozen foods retail shops, Refrigeration Corp. recently announced that it would furnish designs and complete installations for frozen foods stores at a cost of about $5,000 to veterans who wish to enter the business.

During the war, the organization manufactured quick-freeze equipment and frozen foods storage units for the armed forces. It lays claim to being the first company in the country to place home freezers in outlets for postwar civilian consumption; Refrigeration Corp. home freezers were on sale 13 days after V-J Day in leading department stores.

## This Is Mr. Baker

**ARLEY L. BAKER**

**Alco's assistant sales manager. The 'News' regrets that the wrong cut appeared over Mr. Baker's name in a recent issue.**


**VISOLEAK**

Detects leaks in refrigeration equipment before they cause damage to expensive installations and loss of costly products.

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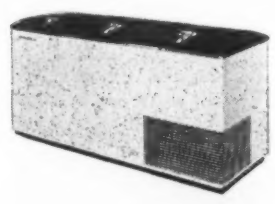
**ENGINEERED FOR DEPENDABLE PERFORMANCE WHEREVER FOOD IS SERVED OR SOLD**

Here, at last, are dependable, long-life frozen food refrigerators designed especially for exacting commercial service. Here is the kind of *practical* and economical protection for frozen foods that fits the needs of all establishments that sell or serve frozen meats, poultry, seafoods, fruits and vegetables. Blue Flash Frozen Food Refrigerators are self-contained "plug-in" units that require *no* special wiring. Their strong construction and heavy hardware are made to take the punishment of hard commercial use.

**FOOD COMPARTMENTS ARE SPACIOUS AND SANITARY**

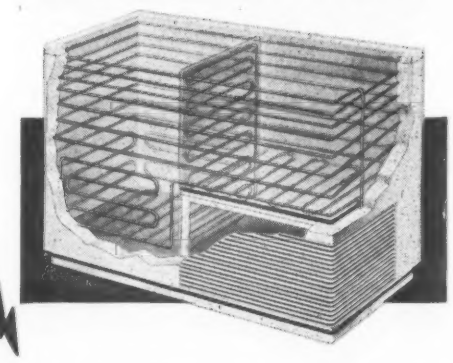
Blue Flash Frozen Food refrigerators have the capacity that food retailers need to keep sufficient stock for daily needs plus the necessary reserves for peak demands and heavy week-end sales. Storage compartments are unobstructed by cooling coils—seldom require defrosting—are easily kept clean and sanitary. Baskets separate varieties of foods, and provide convenience and accessibility



**MODEL T-D**
Three compartments with 17½ cubic foot total capacity. Overall length 88½" width 28" height 39½".

**MODEL R-D**
Two compartments with total capacity of 9½ cubic feet. Overall length 61" width 28" height 39½".

Brunswick
**FIVE-SIDED CONDUCTIVE COIL REFRIGERATION FOR MAXIMUM EFFICIENCY**



On the outside of tank walls and bottoms a network of copper coils is firmly *soldered* to provide conductive zero range temperatures to all food compartment surfaces. Even, low temperatures of 0° or below are maintained with minimum variation. 5 inch vermin and moisture proof insulation is plastic sealed and hermetically sealed, too. Positive accurate temperature control.

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